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IMPERIAL GAZETTEER  
OF INDIA

VOL. XIV  
JAISALMER to KARĀ

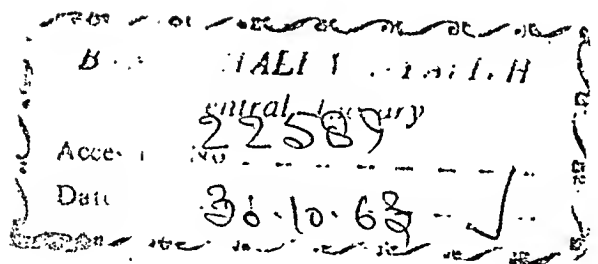
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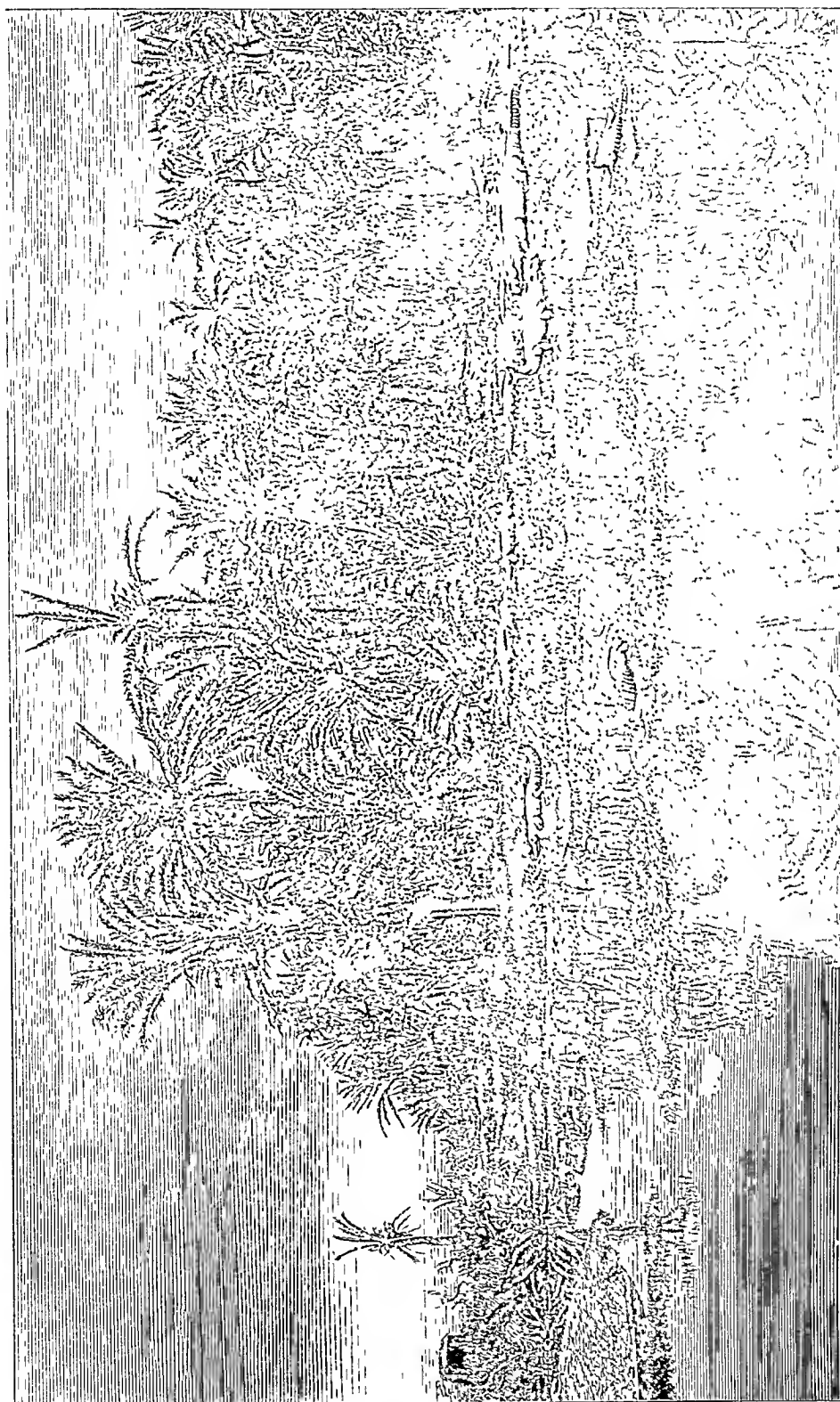
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CROCODILE POND

See page 11.

WANDERINGS  
OF A  
NATURALIST IN INDIA  
THE WESTERN HIMALAYAS, AND  
CASHMERE

BY ANDREW LEITH ADAMS, M.D.  
SURGEON 22D REGIMENT.

EDINBURGH  
EDMONSTON AND DOUGLAS

BA  
369.4

I DEDICATE THIS VOLUME

TO THE MEMORY OF

FRANCIS ADAMS, A.M.

AS A

SMALL TOKEN OF FILIAL DEVOTION,

AND IN GRATEFUL REMEMBRANCE OF THAT TRAINING

IN EARLY LIFE

BY WHICH HE DIRECTED MY MIND

TO AN APPRECIATION OF THE WORKS OF NATURE,

AND A LOVE FOR ALL INTELLECTUAL

AND IMPROVING STUDIES.

MS. D. LL.D.  
Data Entered  
6 AUG 2001

The climate is dry and healthy, but the hot season is very prolonged and the heat is intense and trying. The temperature is highest in May and June, when hot winds prevail with much violence, while the coldest period is in January, the thermometer frequently falling below freezing-point. The rainfall is precarious and varies in different parts. The annual fall at the capital since 1883 has averaged between 6 and 7 inches. Statistics for other places in the State are available only since 1895, and they show that the fall is usually a little greater in the east and south, and less as one proceeds west. The year of heaviest rainfall was 1883, when more than 15 inches were registered at Jaisalmer, while in 1899 no rain at all fell at Khābha to the south-west and Rāngarh to the north-west.

The chiefs of Jaisalmer are Rajputs of the Jādon clan, and claim descent from the deified hero, Krishna. According to the annals

History. of the State, the tribe became dispersed at the death of Krishna, and many of them, including two of his sons, proceeded northwards beyond the Indus and settled there. One of their descendants, Gaj, is said to have built a fort called Gajni (identified by Tod as the Ghazni of Afghānistān, but believed by Cunningham to be in the vicinity of Rāwalpindi); but being defeated and killed in a battle with the king of Khorāsān, his followers were driven southward into the Punjab, where Sālivāhan established a new capital, which he called after himself, and which has been identified with Siālkot. This chief subsequently defeated the Indo-Scythians in a decisive battle near Kahrōr, within 60 miles of Multān. So great was the fame of this victory that the conqueror assumed the title of Sākāri, or 'foe of the Sākas' (Scythians), and further to commemorate the event established the Sāka era from the date of the battle (A.D. 78), an epoch which is still in general use throughout India. Sālivāhan's grandson, Bhāti, was a renowned warrior who conquered many of the neighbouring chiefs, and from him the tribe now takes the name of Bhāti Jādons. Subsequently, the Bhātis were gradually driven southward: till, crossing the Sutlej, they took refuge in the Indian desert which has since been their home. Here they came into contact with various Rājput clans, such as the Būtas and Chunnas (both extinct), the Barāhas (now Musalmāns), the Langāhas, and the Sodhas and Lodras (both branches of the Paramāras). Their first capital was at Tanot, still in Jaisalmer territory, which was founded about the middle of the eighth century; but being ousted from this, Deorāj, the first chief to assume the title of Rāwal, built Deogarh or Deorāwar in 853, now called Derāwar in Bahāwalpur territory, and established himself there. Shortly afterwards, the capital was changed to Lodorva, an immense city with twelve gates taken from the Lodra Rājputs, the ruins of which lie 10 miles west-by-north of Jaisalmer town. Lodorva

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with the result that at the present time the State owes about 2 lakhs to the British Government.

Jaisalmer has its own coinage, called *Akhai shāhi* after Mahārāwal Akhai Singh, who established a mint at the capital in 1756. The local rupee in 1895 was worth more than 15 British annas, but now exchanges for about 11; its value fluctuates almost daily, and has been as low as 9 annas. The mint has not been worked since 1899, and the *Akhai shāhi* coins will be converted as soon as possible.

The land revenue system has undergone no changes for a long period, and neither a survey nor any regular settlement has been undertaken. The revenue is mostly paid in kind. Where wheat or gram is grown, the State takes from one-fifth to one-sixth of the produce; and of the rains crops from one-fifth to one-eleventh. There are four different modes of estimating the State share of the out-turn. In the first, the crop is valued when standing; in the second, when cut, but before threshing; in the third, after it has been threshed out; and in the fourth, from the condition of the bare standing stalks. In addition to the portion payable to the State, the cultivator has to settle the demands of the men told off to watch the crops in the Darbār's interests and of certain other officials; these demands collectively amount to about half of what is taken by the State. In places, the land revenue is paid in cash at Rs. 2 (local currency) for as much land as can be cultivated with a pair of bullocks. Of the 471 villages in Jaisalmer, 236 are *khālsa*, or pay revenue direct to the State, 88 are held by *jāgirdārs*, 24 as charitable grants, 11 under title-deeds, 99 in *bhūm*, and 10 for services to the State. Only one of the *jāgirdārs* pays tribute; but all serve the Darbār when called on, pay *meola* or fee on succession, and present the chief with a horse on certain occasions. Lands given in charity (*sāsān*) enjoy complete immunity from all State dues and are practically grants in perpetuity. Those who hold under title-deeds (*putta*) or for service rendered to the State pay nothing, but retain their estates at the pleasure of the Darbār; while the *bhūmiās* have to serve when called on, and pay a fixed sum yearly, as well as certain sums on such occasions as the chief's accession, marriage, &c.

The State troops number 220 of all arms: namely, 39 cavalry, 168 infantry, and 13 artillerymen. Out of 25 guns, 17 are serviceable. The annual expenditure on the army is about Rs. 10,000. The police force numbers 152 men, of whom 72 are mounted, chiefly on camels, and the annual cost is about Rs. 9,000. There is one jail (at the capital), and small lock-ups in the districts.

In regard to the literacy of its population Jaisalmer stands tenth among the twenty States and chiefships of Rājputāna, with 2.9 per cent. (5.4 males and 0.1 females) able to read and write. Excluding indigenous schools managed by Jatis (Jain priests), the State now contains

## CHAPTER I.

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DURING a sojourn in the East of nearly seven years, with frequent change of place, I had many opportunities afforded me of making a lasting acquaintance with various objects of natural history, the local scenery of Northern India, and the Western Himalayan mountains. My leisure hours were also not unfrequent, and leave of absence was always most willingly granted me whenever my professional services could be dispensed with ; for which I shall ever retain a grateful remembrance to the highly-esteemed commanding and medical officers under whom I then served.

In the following reminiscences I have aimed at preserving the objects in the order they appeared to me, and attempted to describe the scenes and circumstances with which I was brought in contact as minutely as the incidents of travel would allow, and in a belief that my jottings by the way would add zest to the drier descriptions of animals. To a few such a proceeding may seem a work of supererogation, but it must be borne in mind that it is not to the professors of natural science that these pages

are devoted, but to the young and ardent, who may enjoy such opportunities for enlarging their ideas and improving their minds ; therefore, should I weary the reader, I must confess that my best endeavours have been directed to the opposite, for I have too lively a recollection of my own difficulties when I began inquiries into the natural history of India, and the perplexity and confusion occasioned by dry details, catalogues, and detached papers, devoid of lively incidents to excite my ardour or increase my interest in the study. It would be useless to dilate on the advantages India offers to the naturalist ; and with respect to the Himalayas, perhaps few regions afford like inducements for study. Their vast ranges are often clothed with verdure to the summits, and on the highest to the confines of perpetual snow. In the rich and fertile valleys animated nature appears in all its loveliness and beauty. The mineralogist and geologist will find ample materials of the greatest interest on their mountains and the lesser ranges. In the latter especially—what is called the Sewalik range—are to be found remains made known to us by the labours of Falconer and Cautley. But although we are in possession of much interesting and valuable data regarding the palæontology of the Himalayas, great mines are yet undiscovered. The zoologist may ramble over hill and dale, mountain and plain, and after a lifetime of constant observation find his delightful pursuit more attractive than ever. It is on these noble mountains that the sportsman can enjoy his favourite pastime unscathed by the burning Indian sun ; in their lovely glens bears stalk undisturbed, whilst various species of deer, wild sheep, goats and the ibex, feed unmolested on the craggy steep. In the forests and valleys along the sub-Himalayan range tigers and leopards prowl, and the wild dog and various foxes seek sub-

sistence wherever their peculiar prey is plentiful. Add to these the numerous pheasants and partridges, whose elegance and beauty are unsurpassed by the allied birds of any other country. The endless variety of plants, from the lichen on the mountain-top to the deodar and Himalayan oaks in their native forests, present one of the choicest fields to the botanist.

There can be no doubt that he who constantly keeps his mind and body in healthy exercise is accumulating stores which, if they do not produce intense happiness at the time, will be the source of many pleasant after-reflections. If a journal registers only the leading events of every-day life, and describes the most prominent occupations of its author, it does a great deal; for if these occupations had not been recorded, where is the intellect however clear—the memory however good—that could have retained them with any degree of accuracy? I therefore present them as they were registered years ago among the busy and changing scenes of an active life. If I fail in benefiting others with the information obtained, I have at least the consolation of knowing that my exertions, as regards myself, have borne good fruits; insamuch as they have kept mind and body in pleasant and improving occupation; or rather, as the author of the *Rambler* has exquisitely expressed it, “He that enlarges his curiosity after the works of nature, demonstrably multiplies the inlets to happiness; and therefore the younger part of my readers, to whom I dedicate this vernal speculation, must excuse me for calling upon them to make use at once of the spring of the year, and the spring of life; to acquire, while their minds may be yet impressed with new images, a love of innocent pleasures and an ardour for useful knowledge; and to remember that a blighted spring makes a barren year, and that the vernal flowers, how-

ever beautiful and gay, are only intended by nature as preparatives to autumnal fruits.

However invaluable are the labours of him whose field of observation is entirely confined to the naming and arranging of objects in the cabinet or in the museum, it will, I think, be conceded, that a proper acquaintance with the subject means something more than a mere knowledge of the appearances and classification of species ; in fact, that nature is best studied in her own wide chamber. This it is that gives the intense zest to the writings of such original observers as Humboldt, Darwin, Audubon, and a host of distinguished names, whose labours are not only valued for their depth of learning and acumen, but also for the homely lessons they convey to the youthful mind. Were the lives of the most eminent students of science carefully inquired into, it would no doubt be found that their tastes for the study of natural phenomena were first aroused and developed by having their attention early directed to the subject.

It is not often that a member of the medical profession in active employment can devote the necessary time and attention to enable him to form a close acquaintance with the collateral sciences ; at the same time, by husbanding one's leisure hours, it is wonderful how much may be done in intervals of rest even in the most engrossing avocations of life. In the army especially, where the calls of duty are not always onerous or frequent, together with the advantages offered by constant change of scene, opportunities present themselves to military officers very rarely enjoyed in civil life. It has been my good fortune to participate largely in these respects, and whilst I am sensible of having made a fair use of my hours of freedom, at the same time I cannot conscientiously re-

\* *Rambler* for April 1750.

proach myself with having done so at the expense of the requirements of my profession, or the service to which I belong.

As a mental and bodily gymnastic during the long tedious hours of idleness that frequently fall to the lot of officers in the army and navy, more particularly on foreign stations, there is perhaps nothing equal to the outdoor pursuit of natural science,—whether in setting to work with head and hands to study the natural objects which everywhere surround them, or even simply collecting specimens without evincing any particular desire to become better acquainted with their characters—which, however, I must allow, is a faint-hearted essay at gaining information.

In thus attempting to suggest a remedy for idleness, I trust my readers will not accuse me of the narrow-mindedness that excludes all rational and manly pastimes, inasmuch as, if he will take the trouble to peruse the contents of this volume, he will find that both admit of wholesome combination.

Voyages by the Cape of Good Hope to India have been so frequently narrated, and present in general the same monotonous uniformity, that I shall content myself with transcribing only a few of the chief and most interesting incidents in that portion of my journal.

I left Queenstown (then better known as the Cove of Cork) on the 29th of January 1849, with a detachment of the 64th Regiment bound for India.

The first few days were marked by very rough weather, and the never-failing accompaniment, sea-sickness, until about the latitude of Madeira, when a change for the better took place, and we began to get our sea-legs, and observe the novelties of the deep, such as flying-fish and shoals of por-



poises, whilst an occasional shark would show its great fin and tail above water.

As we neared the Line, sudden squalls and heavy rains were of frequent occurrence, and now and then vast numbers of that beautiful tunny-fish, the bonito, were seen charging past us at great speed.

Thus sped the even tenor of our ways. No troop-ship at sea should be without a netting around the fore-castle. It is notorious that more soldiers are drowned by falling from the fore-chains than any other part of the vessel. A sudden lurch will suffice to throw a landsman off his balance; and if the fore-castle is on a level with the bulwarks, there is every chance of his falling overboard. In this way we lost a soldier, who was washing his clothes, when a wave struck the vessel, and he missed his footing and fell into the sea. I have moreover records of several cases of a similar nature, all showing that many lives might be saved if more attention were paid to prevent that and such-like accidents. Lifeboats ought to be *always* in immediate readiness, and supplied with buoys, and all the requisite contrivances to secure the quickest and most efficient assistance.

On the 5th of March we sighted the island of Trinidad, and having gained a strong westerly breeze, our good bark scudded along, our almost constant companion being the little petrel; a few of a square-tailed species were also observed, and now and then a solitary individual of the great black petrel.

In lat.  $30^{\circ} 52'$  S., and long.  $27^{\circ} 12'$  W., an albatross made its appearance for the first time, and as we approached the Cape, they became more numerous.

The brown booby and Cape pigeons were plentiful off the African coast, where we encountered a heavy gale of

three days' duration. At length the hurricane abated, and was succeeded by a dead calm, during which several land birds were seen hovering around the rigging.

In lat.  $36^{\circ} 37'$  S., long.  $33^{\circ} 9'$  E., a little gray fly-catcher flew on board exhausted. Flocks of greedy albatrosses, petrels and Cape pigeons crowded around the ship's stern. A hook was baited with fat, when upwards of a dozen albatrosses instantly rushed at it, and as one after another was being hauled on deck, the remainder, regardless of the struggles of the captured, and the vociferations of the crew, kept swimming about the stern. Not even did those birds which were indifferently hooked, and made their escape, desist from seizing the bait a second time! The poor animals seemed half-starved. The wing-bones of the albatross are much in request for pipe-stalks, and purses are made of the skin of the feet.

Our sailors prognosticated that the unusual familiarity and tameness of the albatross were certain harbingers of another storm; and assuredly, towards evening, a mass of dark clouds was seen lowering in the east, and by sunset we had again "hove-to," under close-reefed sail, and were weathering one of the most fearful tropical hurricanes our gray-headed captain had ever witnessed.

We saw no more albatrosses or petrels after passing lat.  $25^{\circ}$  S. Flying-fish began to reappear in great numbers, and seldom a day passed without a tropic bird (*Phaëton*) to keep us company. The weather, as we again drew near the Line, became more settled; and we had frequent opportunities of beholding the splendid sunsets of these latitudes—such pictures as a Turner never could have painted, or, had he done so, none but those who had witnessed them in nature would credit.

At daybreak on the 19th of April we sighted the Seychelle Islands, and were soon at anchor in the little harbour of Mahe.

After a long imprisonment on board ship, one feels a schoolboy's longing to take a run on shore, and when the foot touches *terra firma* for the first time, especially in a new country, how eager are we to be off and see the lions of the place!

The desolate and barren appearance of the Seychelles, when viewed from a distance, dies away as you approach.

Their mountains rise as high as 2000 feet above the level of the sea, and are clothed with verdure to their summits. For the first time we observed the bamboo, cocoa-nut, tamarind, plantain, orange, coffee-plant, mango, date, and sugar-cane, growing in all their tropical luxuriance. A coral reef surrounds the island of Mahe, which is said to be composed of granite, and consequently forms an interesting geological feature compared with other oceanic islands.

The Seychelles are likewise famous from being the only locality where the celebrated coco-de-mer (*Lodoicca Sechellarum*) is found. This graceful palm attracts the stranger's attention on landing at Mahe, where several may be seen in the centre of the town. It has been introduced into the island of Mauritius, but is said not to produce fruit anywhere except in its native islands.

During our short stay we were much indebted to our excellent friend M. G., whose delightful retreat on the sea-coast we had the pleasure of visiting.

On the following morning, after a refreshing bathe in a mountain-stream, and a ramble through our friend's plantain-groves, among the clustering fruit of which I found a turtle-dove (*Turtur rostratus*) sitting on its nest and eggs, we

bade farewell to our kind host, and left in his canoe, loaded with fruit and sugar-cane.

Turtles are plentiful, but the particular species I could not determine. The frigate, or man-of-war bird (*Tachypetes*), was often seen soaring at great heights. Its deeply-forked tail and aquiline flight are distinctive.

After passing the Line we were becalmed for several days, during which there was not a ruffle on the wide expanse, and our vessel lay like unto "a painted ship upon a painted ocean."

Every one was tired out by the monotony of a long voyage ; and irrespective of that, and the failure of the winds, the heat was great, and seldom under 86° and 90° in our cabins. At length uncertain breezes came and went, and after days of suffocating heat and much discomfort we cast anchor in Bombay harbour on the 18th May, when the troops were disembarked into small boats, and sailed for Panwell, on the coast.

The weather was intensely hot at the time : in consequence we were obliged always to march at night, so as to arrive in camp before the burning sun of the Deccan made its appearance.

A hurried visit was paid to the celebrated Caves of Carlee, and we admired their wonderful galleries and colossal elephants, dug out of solid trap ; but there was no time to examine anything minutely, for the short-lived evenings of these latitudes afford but scanty opportunities for a passing traveller to feast his fancy.

Soon after our arrival at Poonah we were joined by the other detachments of the regiment, which had arrived at Bombay after us ; and then, once fairly settled down to habits of Eastern life, I found that even active or onerous profes-

sional toil and study may find an occasional leisure hour, which will be best employed in whatever tends to improve the mind and keep the body healthy. Accordingly, by rising early and going soon to bed, I had always a few hours at my disposal for outdoor amusements and recreations; and when the heat of the day kept me within the shade of my bungalow, I could still find occupation and study among the collection of natural objects I had gathered during my morning and evening rambles.

A physician of great Indian experience says: "Nothing is so destructive of energy of mind and body as habitual indolence and inactivity in a tropical climate. Those persons are undoubtedly the most happy who have sufficient opportunities and inducements to keep themselves always employed in useful occupations, and they alone preserve their vigour of body and mind unimpaired during a long residence in India."\*

Such, I will confess, has been my experience, and I appeal to those who have made themselves conversant with the habits and mode of life of Englishmen in India whether or not the most part of the so-called insalubrity of the climate is not attributable to the neglect of the simplest of hygienic rules?

It might be no unprofitable study for the political historian to trace how far the habits and modes of life of Englishmen in India may have influenced their characters as rulers, and whether the great mutiny was in any way the result of our selfish regard for personal comfort, to the neglect of the interests and welfare of the people we attempt to govern.

\* Twining on *Diseases of Bengal*.

## CHAPTER II.

Familiar Birds about Poonah—Hindoo Temple of Parbuttah—Scenery—Vultures—Large Bats—Habits of Parrakeet—Frogs—Sunbird and Frog—Flycatcher—Insects—Snakes—Cobra—Hog Rat—Tiger and Bullock—Kingfishers—Indian Roller—Pigeons—Warblers—Tailor-Bird—Govind-Kite a Public Scavenger—Hoopoe—Dial-Bird—Weaver-Bird's Nest—Egyptian Vulture—Common Trees—The Mango—Paradise Flycatcher—Ants—Coming of the Monsoon.

AMONG the chief ornithological denizens of the highlands of the Deccan, the following may be easily distinguished :—

The wire-tailed swallow (*Hirundo filifera*) is plentiful at Poonah during the summer months. It is on wing soon after daybreak, and may be observed skimming over the Great Parade, or around our bungalows, all day long, hunting its winged prey. In the calm and delightful evenings peculiar to Poonah they may be seen in hundreds, perched on stones and tufts of grass upon the plains and the river-banks, and just as night is closing in they rise and seek a roost on the tallest spires and mosques. It is seldom that the males have their delicate tail appendages perfect, and often, they are entirely wanting.

The allied swift (*Cypselus affinis*) is common, and builds in societies among the ruined palaces and domes : its nest is made of clay, intermingled with feathers and grass. In haunts and habits it much resembles the European black swift, which, it would appear, has not hitherto been found in Hindostan.

Of the Corvidæ we have only the Indian crow (*Corvus culminatus*) and Indian jackdaw (*C. splendens*) about Poonah. Both are plentifully distributed. The latter is a bold marauder, and fearlessly disputes his rights with the govind-kite (*Milvus migrans*, Bodd.) and the Egyptian vulture (*Neophron percnopterus*); like the rook, the Indian crow breeds in societies. In plumage and habits the Indian sparrow is very similar to the British species; the manner in which his nest is formed, and the materials of which it is composed, bear likewise a close resemblance to that of its brother in England. In the walls of the natives' huts, among the thatch of our bungalows, in every tree, it builds its nest. It is the same dirty little fellow amidst the mud and mire of an Indian city as on the house-tops of St. Giles.—Among the most common birds, I noted the Indian robin (*Thamnobia fulicata*). In manner and habits it is the Oriental representative of redbreast, just as the migratory thrush takes the place of the former with the Canadian emigrants.—The gray titmouse (*Parus cinereus*) represents the great ox-eye of Europe; it is, however, a poor rival in point of brilliancy of feather, nor is his call-note so clear and joyous; it is, however, more familiar, and may be constantly seen in our gardens.—The intensity of the red on the sides of the bay-backed shrike (*Lanius hardwickii*) is peculiar to the breeding-season. It is the most common butcher-bird, and may be seen perched on the lower branch of a mimosa, watching an opportunity to dart on some luckless beetle: down it pounces on its prey, which it bears away to a neighbouring thorn, impales and devours; then flits within a few feet of the ground to a new perch, from whence, with head awry, it examines intently the ground beneath, now and then answering the harsh scream of its companion on some neighbouring tree.

The bulbul (*Pycnonotus hæmorrhous*) is very common.—There is considerable variety in the plumage of the green bee-eater (*Merops viridis*), sufficient to puzzle one at first.—The black Indian redstart frequents gardens.—The pied wagtail (*Motacilla dubhuncensis*) is very plentiful.—After some trouble, I had the good fortune to obtain a specimen of the great pied wagtail (*Motacilla maderaspatana*); it is rare in this district, seen only by the sides of streams, and generally alone.—Here also is often found the yellow wagtail-lark (*Budytes viridis*): the feathers on the head are blue-gray in spring and summer.

One of the finest views of the city of Poonah and the surrounding country is to be obtained from the fort of Parbuttah, once a Mahratta stronghold, now a Hindoo temple. It is said that, in 1802, the Rajah of Poonah witnessed from this place the defeat of his army at the battle of Kirkee. The approach leads through a shady avenue of tamarind, mango, and cocoa-nut trees, to a small lake with an island, clothed with fruit-trees to the very margin of the calm and glassy water, in which are reflected the broad leaves of the plantain and palm, festooned with a woodbine-like creeper. The scene is perfectly Oriental, and seldom will the beholder gaze on a prettier little spot. A broad flight of steps leads to the fort, on entering which the ears of the traveller are assailed by the deafening clamour of “*tom-toms*” and the discordant screeches of uncouth instruments. Among the dilapidated and ruined walls are dark and dismal dens, filled with grim idols, to which numbers of adoring natives bend the knee. From the parapet there is a fine view of the surrounding country. A range of high conical mountains stretches from north to west, while eastward lesser hills bound the view, and southward the eye roams over a vast level covered with fields



of grain, orchards, and groves, wherein grow the lime, the orange, the vine, pomegranate, mango, plantain, and guava. Truly may the traveller say, "This land is fair to look upon!"

The remains of one of Holkar's palaces may be seen at the back of the artillery lines. At the time of our visit (5 A.M.) the carcase of a horse was lying close by; round it were congregated tawny eagles, Indian and Egyptian vultures, crows, pariah dogs and jackals. As we approached they quickly dispersed. One after another the great eagles disappeared, but the vultures gorged with their repast, sat perched on the ruined walls of the palace, while the jackals skulked away to their hiding-places, and the dogs, scarcely able to rise from the place where they had fed, lay listlessly around the skeleton, or, seated on their haunches, licked their lips, as though gloating over the remembrance of their recent meal. I believe, when an artillery horse dies, the carcase is never buried, but laid upon the plain, where it is quickly devoured by these useful scavengers.

The climate of the high northern ranges is delicious; several old forts remain upon their ridges, the chief of which is Poonadur, a favourite resort during the hot months.

There are few good shooting-grounds in the neighbourhood. Quail and partridge are found in small numbers, and after the rains snipe—common and jack-snipe—also the painted species (*Rhynchaea bengalensis*).

The antelope black-buck (*Cervicapra asiatica*) is rare, and from having been so much hunted is very shy and difficult of approach.

The wokhab or tawny eagle (*Aquila fulvescens*) is common around Poonah, and is often seen on housetops or feeding with govind-kites on the refuse of the kitchen. It is by

no means dainty in its choice of food, and has little of the majestic and noble mien of the golden eagle ; it roosts on the tops of tall trees in the immediate vicinity of cantonments. —The Indian vulture (*Vultur indicus*) I have seldom seen except in the circumstances described above, when almost incredible numbers congregate.

My attention was one morning directed to a colony of flying foxes (*Pteropus edwardsii*) which had taken up their abode on a banyan-tree situate in one of the most central and populous quarters of the city of Poonah. Each bat was suspended by the hind-feet, in which position it remained even when shot. Some were perfectly motionless, others swaying to and fro with noisy clamour, indifferent to the busy crowd moving onwards in the street below. The natives call this bat the “wurbagool.” The species is very plentiful, and numbers are usually to be seen in the still evenings at high elevations, flying with an easy floating motion, now and then varied by the regular flap of their large wings as they steer their course towards the fruit-groves. They do not always rest during the day, for flocks of several hundreds may be observed at mid-day in the mango-tops—some attached to the branches, others flitting round the trees, and uttering an occasional harsh discordant cry. The half-caste Portuguese eat them, and look upon their flesh as delicious. Individuals of this species appear to differ considerably in size, which may, however, be owing to age. One I killed measured from tip to tip about five feet. Figs, mangoes, etc., constitute their favourite food.

The rose-ringed parakeet (*Palæornis torquatus*) is abundant in every grove, where great flocks often assemble. Their harsh screams are deafening at times. In the evenings it was amusing to watch these birds. Minas and sparrows used to collect

in a mango-tope close to my bungalow ; several hundreds frequently congregated in the same tree, screaming and vociferating as loud as they could. If a shot was fired among them, the parakeets, with a shrill scream, dived downwards in a dense mass, and swept circling round the grove. The minas rapidly returned to their roost, when the noise and clamour became louder and louder as fresh arrivals poured in, until night began to lower. Then the cries died gradually away, and except an occasional scream, no signs were heard of the vast assemblage crowding every branch and twig.

The streams about Poonah are subject to sudden inundations, owing to the proximity of the mountains. During the hot summer months, when there is no rain, they become dried up, and, excepting small pools here and there, nothing is to be seen but the debris of the last storm. Frogs spawn in these situations. One species, a few inches in length, with the belly and throat pure white, is very plentiful ; it basks on the sides of the pools, and takes to the water when one approaches, skipping over the pool something in the way a boy *skims* a flat stone. My attention was directed to the surface of the water, which appeared as though large drops of rain were falling on it. Having satisfied myself that this could not be the case, my next supposition was that bubbles of gas were ascending from decomposing matter at the bottom of the pool, which opinion was apparently confirmed by the bubble rising at the time the drop appeared on the surface. I discovered, however, that the water was alive with minute tadpoles. Vast numbers of these little creatures were darting to and from its surface with great rapidity. The frogs I had alarmed were poised upon the water, staring at me intently, and at the margin of the pool were hundreds of tadpoles with the caudal extremity still perfect ; others, again, at a distance of

some eight or ten feet, had the tail almost separated ; whilst a few here and there had lost the appendage altogether, being complete frogs.

About half-a-mile from my bungalow there were two large hedges of prickly pear, and between them a stagnant pool. I often took up a position under the cool shade of a peepul-tree close by, and watched the habits of the feathered tribe at mid-day. On one occasion, having shot a sun-bird, it fell on the margin of the pool, when some animal jumped from the muddy water, seized it, and instantly disappeared with its prey. A short time afterwards a large green frog appeared on the surface. I shot it, and discovered the bird in its mouth.

The purple honey-sucker of Jerdon, the beautiful blue-winged sun-bird (*Arachnechthra asiatica*, Lath.), is common, and nothing can exceed the grace and elegance of its congener, the Ceylon sun-bird (*Leptocoma zeylonica*). This exquisite little creature sports round the top of the prickly pear, sucking the nectar from its flowers like a humming-bird. Neither species, however, subsists altogether on honey, for flies and minute insects are frequently found in their gizzards. The brilliant green spot on the wing of the male is wanting in the female.

The gaudy lesser crimson-breasted flycatcher (*Pericrocotus peregrinus*) is a tenant of the woods and hedges. Sometimes flocks of males, at other times females only, are observed ; the rich and beautiful plumage of the former is very striking ; insects and larvæ constitute its favourite food. The shrill, clamorous cry of the koel, or black cuckoo (*Eudynamis orientalis*) was constantly heard in woods and groves ; it feeds on fruit. I shot a specimen of a young male European cuckoo (*Cuculus canorus*) on the 16th of October.

At their residence near Poonah the ex-Amirs of Seinde had several fine goshawks, trained for falconry ; the species has been shot on the Nepal mountains and Neilgherries. Trained Bhyri falcons (*Falco jugger*) are sold at Poonah by the natives, and fetch high prices. They say these birds inhabit the mountains and woody parts of the district ; but there is no more handsome falcion than the teesa (*Poliornis teesa*) ; its fine, clear, light-coloured eye, and in fact the whole appearance of the bird, indicates grace and strength of wing. In the stomach of a female I found a lizard 4 inches in length.

Among the many discomforts Europeans have to endure in the East are myriads of fleas, mosquitoes, snakes, centipedes, scorpions, etc. etc., which not only infest gardens, but penetrate into the interior of houses, especially at night. No sooner is the cloth spread than hundreds of beetles, attracted by the light of the candles, dash recklessly into the flame, and fall disabled on the table, intruding themselves into every dish ; crickets chirp among the beams overhead, and the whole apartment resounds with the noise and buzz of insect-life. Nor is the scene without very different, though occasionally more attractive ; for swarms of fire-flies assemble round the bushes, and with the lucid beam of their tiny lamps illumine the gloom of the tropical night.

On one occasion I was awoken by my servant pursuing a snake across my bedroom-floor ; he killed it at my bed-side. It was a species very common about Poonah of a greenish-black colour, and about 2 feet in length, with numerous white spots on its upper surface.

Snake-skins (so entire that even the covering of the eye is retained) were often found under the floor-matting ; and a species, white-spotted on the back and sides of the body

and about 5 feet in length, abounds in gardens ; on that account one is often obliged to ride on horseback after nightfall, when numbers may be seen crawling about in the roads and gardens, searching for frogs, on which they principally feed. There is a green species,  $2\frac{1}{2}$  feet in length, said by the natives to be very venomous. My attention was directed to a circumscribed swelling in the centre of the body of one of these serpents, which on dissection proved to be a frog, fully three times as broad as any other part of the snake's body. Two minute wounds on the frog's back were the only marks of violence discernible.

The cobra di capella is tamed, and taught to dance to the pan-pipe-like sounds of a sort of flageolet. It is said to be plentiful in the cactus hedges, which seem to be a "rendezvous" for all kinds of snakes and vermin. One sultry day, while seated under an acacia tree, I heard a hissing sound behind me, and turning, saw a cobra close by, with raised head and inflated hood, knocking its nose against the stem of a cactus. One of the first injunctions a native servant gives his newly-arrived master is, "*always to shake his boots well before putting them on,*" scorpions being apt to take up their abode in the toe !

A green lizard is common in gardens, and on the thatch of bungalows : it preys on scorpions, especially a small black species, abundant beneath stones and the matting of rooms. Centipedes of large size are very plentiful.

The moongus, or gray ichneumon (*Herpestes griseus*), is found in this district, and frequently domesticated. It is exceedingly useful in destroying centipedes and scorpions, but I have never seen it attack serpents ; and the story regarding the antidote it obtains for snake-bites in the root of a certain

plant called moonguswail, like most Indian tales of that description,\* is perfectly mythical.

The bandy-coot or hog-rat (*Mus giganteus*) was frequently seen in our houses. This animal is very destructive, and creates much disturbance at night. Sometimes it coursed across the canvas covering of our ceiling—a signal always for “drawn swords,” and a *prod* through the “dungaree,”† together with the pleasing uncertainty as to whether you are transfixing a ghous (as the Mahrattas call it) or a mangur (*Felis bengalensis*), a species of wild-cat which prowls about at night, and hides during the day in hedges, or under the thatch of bungalows.

Several species of chameleon are abundant: they frequent bushy places, and are seen basking on the stems of trees; while geckoes are common on the walls of houses. Tigers are found on the mountains and in the jungles. Not far from Kirkee is the village of Maun, where, during midsummer, both the common and jack-snipe are abundant in the rice-fields. They arrive about the beginning of November, when also a few painted snipe may be obtained.

Maun is situate close to a range of mountains covered with low dense jungle, extending some distance into the plain, which is studded with villages, rice-fields and gardens, separated by ravines and large tracts of waste and barren country. A dense jungle to the north of the village was said to have been the haunt of a man-eating tiger for some time previous to our visit, and we found the carcase of a bullock lying in a chilli field, not a stone's throw from the village. On both

\* See an interesting account of a fight between a cobra and moongus in the *Times of India* for the 9th of August 1863, signed by three officers who witnessed the encounter.

† A coarse white linen used for lining the interior of rooms.

sides of the animal's neck were deep wounds caused by the tiger's teeth, and on the shoulder a long gash, where the claw had ploughed through the skin; the whole of the flesh on the belly and flanks was torn away, the stomach and entrails lying on the ground, where we could see distinct traces of a scuffle, and the footprints of a very large tiger. Pitching our tent within range, we sat up that night, expecting to get a shot at the marauder, as the moon was shining brightly; but after a fruitless vigil, and growing drowsy, I went to bed, and had scarcely been asleep an hour when my servant called me to say the tiger had arrived, and was carrying off the carcase. It was too late, however, as we were just in time to see him disappear in the cover with his prey. The following morning all that remained of the bullock was the skull, and a few pieces of the larger bones. A week afterwards I heard that the same tiger had killed another bullock near a village some ten miles distant.

The kestrel (*Tinnunculus alaudarius*), and also the sparrow-hawk (*Accipiter virgatus*), are common. The former may be observed hovering over the plains, and at dusk, not unfrequently in numbers, perched on stones and tufts of grass. Both prey extensively on mice, lizards, and beetles. The latter hawk is trained for quail-hunting. The broad-tailed flycatcher (*Rhipidura fuscoventris*) is plentiful in gardens and wooded localities. It is not shy, and for its size bold and fearless, and will attack birds much larger than itself. The song of the male consists of a few loud and pleasing notes, uttered while the little creature is dancing along the branch with tail and wings expanded like a fan.

The common kingfisher (*Alcedo bengalensis*, Gmel.), the black and white species (*Ceryle rudis*), and the Indian kingfisher (*Halcyon fuscus*, Bodd.), are often observed. The



first is common in rice-fields, streams, and river-banks ; the two latter are not so plentiful ; the Indian kingfisher is a tenant of gardens and pools. On the broad tops of peepul, acacia, and mango trees, the lark-heeled cuckoo or Malabar crow (*Centropus rufipennis*, Illig.) perches ; grasshoppers and coleopterous insects constitute its favourite food. These birds startle one, while passing under a tree, by the flapping of their large fan-shaped wings ; their flight is a sort of sailing motion, which, with the expansive tail, makes them appear much larger than they are in reality. Frequenting like situations may often be seen the beautiful Indian roller (*Coracias indica*), it sports from one tree-top to another with a peculiar zig-zag flight ; butterflies and large insects are its favourite food, and are caught on wing. Flocks of the black-headed finch (*Emberiza melanocephala*, Sykes) are common ; it is dispersed over the fields during harvest, but disappears soon afterwards. Rock-pigeons (*Columba livia*) congregate in the deep wells, in the sides of which they breed. The natives capture them by suddenly throwing a net over the mouth of the well. There is no variety in the wild bird, and although the tame pigeons feed in the fields, the two do not appear to associate. By the sides of hedges, in gardens and way-sides, the Senegal dove (*Columba senegalensis*) is frequently observed. It passes the greater part of the day on the ground, but is often seen likewise on trees. In dissecting and preparing the skins of this species (in fact Columbidae in general), great care should be taken to remove the fat from the skin of the back and sides, else the feathers will be sure to drop out.

The tailor-bird (*Orthotomus longicauda*), with its curiously-fashioned nest, displaying most marvellous skill and care, is plentiful in groves and gardens, where it may be seen

flitting among the dense foliage, emitting its loud cry, resembling that of the mina. The tailor-bird is by no means shy or easily frightened ; on the contrary, it is an inquisitive little fellow. I recollect once, when seated under a tree, employed in skinning a bird, one came within a yard of me, and attentively watched the proceeding. It has a droll way of inspecting objects *sideways*, jerking its tail unceasingly when moving. To those familiar with its habits it will not appear surprising that this strange little creature should be the architect of that wonderful nest, formed of cotton, wool, hair, etc., enclosed between leaves, beautifully *sewn* together with vegetable fibre. The young resemble their parents, except in length of tail ; also the rufous on the head is not so clear.

Of all rapacious birds the govind-kite is the most useful and abundant ; wherever offal exists there this bird is to be found, hovering over the butcher's shop, the kitchen, or the barrack—now leisurely sailing in circles—now darting like an arrow upon its prey, which it devours while on the wing, uttering a clear shrill cry whenever a companion disputes its possession. Its boldness is almost ludicrous. Once, when a servant was bringing mutton-chops from the cook-house to our mess, one of these birds darted upon the dish, and tore away the contents in its talons. The plumage of this species is subject to considerable variety : some are very dark (these I take to be the old birds), others have the under parts light rufous, darkly lined.

The govind-kite, Egyptian vulture, crow, Indian jackdaw, and mina, may justly be termed "*the great scavengers of India.*" What would its large cities be without these useful birds ? and lean and degraded as the pariah dog is, abused and cowed by the natives, still he clings to man, and picks up a scanty meal on the dunghill, or feasts with the jackal

From constant ill-treatment he has become the very picture of abject misery, crouching at the sound of the human voice; yet, from some strange instinct, unsolicited he protects the dwelling of the native, and the midnight robber would find it hard indeed to pass his post unchallenged.

The hoopoe (*Upupa epops*) is very common on lawns and in fields. I have been informed that the black-headed bustard (*Otis nigriceps*) was at one time common in this district. It is now seldom met with, having been so much sought after by sportsmen; one specimen was brought to me from the mountains near Poonah with its eyelids sewn together to prevent it running away!—The naturalist is likely to be led into error in studying the appearance and habits of the dial-bird (*Copsychus saularis*.) The more sombre plumage of the female (which is seldom seen with the male, except during the breeding season) has deceived many. The song of this species is rich and sweet, and frequently imitates the notes of other birds. In habits familiar, it is a common tenant of the gardens, where it pours forth its welcome notes in the afternoon or early morning, and like its rival *redbreast*, sings a bar, and then waits a short time for another individual to reply. This species is the “*nightingale*” of English residents.—Among flocks of mina birds (*Acridotheres tristis*) may often be seen numbers of the roseate pastor (*Pastor roseus*). The smaller size, peculiar sailing flight, and more pointed wings, will distinguish the latter at a distance.

The rain-quail (*Coturnix coromandelica*) is plentiful during the monsoon. I have shot it in lucerne fields close to my house, and the bush-quail in low jungle near the mountains. We have the Indian golden oriole in woods and groves. It is shy and difficult of approach. The nest, which is placed in the fork of a tree, is formed of dry grass, with a finer

description in the interior. The large purse-shaped nest of the weaver-bird (*Ploccus baya*) would fall an easy prey to its enemies, did not the little architect, with surprising intelligence, place it in situations not easily accessible; hence several may be seen suspended from the tips of branches overhanging deep wells, or on the topmost boughs of acacia and thorny trees. The weaver-bird builds in societies, and is docile and familiar in its habits.—The common king-crow (*Dicrurus macrocercus*) is often seen on the backs of cattle.

The Egyptian vulture is a native of Eastern Europe, Asia, and Africa. On the temperate regions of the Himalayas it follows man wherever he congregates; and on the plains of India its gaunt forbidding figure is seen stalking among all animal refuse. It is the smallest of the tribe found in the East; its total length seldom exceeding 26 inches. In the adult the skin of the head and front of the neck is bare, yellow and shrivelled, giving the animal a melancholy, poverty-stricken appearance. The general colour of the plumage is white, except the quills and their coverts, which are black; the iris is red in the old bird, but brown in the young, which also have the naked part about the head of a leaden colour until the second year. There is great diversity of plumage, from the brownish-black of the young bird to the white of the adult; this latter is attained at the third moult. The habits of this species are strictly domestic. It is usually met with in the filthiest parts of towns and military cantonments. As soon as dinner is announced by the bugle-sound in barracks, Egyptian vultures and kites may be seen hastening towards the scene, which soon assumes a lively aspect from the numbers and activity of the kites, as they dart like arrows on the bones and refuse; while others, with head erect, lifting their legs (much after the manner of rooks),

are silently devouring whatever comes in their way. Now and then a vulture in the act of bolting a piece of flesh has to relinquish the morsel to his more nimble companion, whose sharp talons soon tear it off, and he is seen devouring the prize as he sails away. The two species often roost together, and seem to agree very well except at feeding-time. Flocks of both accompany troops for hundreds of miles, and regularly at daybreak, as the new camp is forming, they may be seen approaching from the direction of the previous day's halt.\*

The mango is the most common fruit-tree in this district, but the fruit is not equal to that of Mazagon mango of Bombay. The turpentine flavour of the mango is less perceptible the oftener the fruit is eaten. There are many persons, however, never become reconciled to it—a peculiarity which unfortunately has deprived me of enjoying what many consider the most highly-flavoured and luscious of Eastern fruits. The tree grows to a considerable size, and is tall and spreading, with dense foliage of a dark green; it studs the country over, forming little groves (called *topes*), which break the sameness of the scenery, and offer a grateful shade from the sun. I have spent many happy hours in these mango-topes, during the fiercest heat of summer, searching for birds, especially warblers. Here may frequently be seen the paradise flycatcher (*Tchitrea paradisi*, Linn.), and though not common, its singularly attractive plumage can scarcely escape observation. The adult male has a blue head, white body, with two of the tail-feathers prolonged for upwards of

\* Armies in the field have been followed by flocks of vultures, kites, and crows. It has been stated to me, on good authority, that the crows of New Brunswick and state of Maine decreased very much in number during the American war, and returned afterwards.

8 inches beyond the tip ; these, in the female, scarcely extend beyond a quarter of an inch. The young birds are chestnut. The Paradise flycatcher does not possess great powers of flight, except when hunting for insects ; then its movements are quick, it suddenly appears on a branch beside you, and the next moment is seen shooting like an arrow through the grove, at times uttering a harsh chirp—now perched on the upper bough of a tamarind, now on the lower one of a neighbouring tree—spectre-like it suddenly appears and is as quickly gone. Before I knew the difference between the sexes and young birds, a friend remarked to me, in one of our rambles, “ Did you see that *red* flycatcher with the whip-tail ? ” I insisted that he had mistaken the colour ; then immediately afterwards two birds were shot, one white, and one chestnut, both males. Towards the end of summer the species leaves this district for the warmer climate below the Ghauts.

The sweet-lime produces abundance of delicious fruit, and with the graceful tamarind, the tall peepul, the palm, cocoa-nut, and acacia, forms a leading feature in the landscape. The fig is reared extensively in gardens, where the thick-peeled orange, guava, pomegranate, melon, and pumpkin flourish, as well as an endless assortment of vegetables. Spreading over the land are fields of bageree and jowaree, the staple grain of the country. The former attains the height of a man on horseback. In India, as in most hot climates, ants are plentiful, the Termitinæ or white-ants being the most destructive. Besides several smaller species, there is a great black ant, of the family Attidæ ; it has a large knobby head, is usually seen in columns stretching across the plain, occupied in carrying provender from one nest to another, and in storing up supplies for future consumption. These black moving trains of insect life are

sometimes a foot in breadth, and from their strange appearance on the highway are very apt to frighten horses.

Among the dried-up watercourses running from the mountains, good specimens of agate are met with, and I have occasionally seen a small onyx from the same situations.

In summer the temperature is very equable, the heat never so great as to necessitate the use of punkbas or therm-antidotes;\* and in winter the cold is never so severe as to require a fire. The monsoon terminates in October, when the cold weather sets in, lasting until March or April. Then the heat begins to be felt, and nature pants for rain: the plains and mountains present a sunburnt and desolate appearance; at length clouds collect in the east, and the monsoon bursts with great violence. For some time previous there is lightning every night, and the atmosphere feels close and heavy,—a fierce wind then rises, tearing the thatch off the houses, and sending clouds of dust, dense and suffocating, into the rooms. Bang go doors and windows—distant thunder is heard, and the dark mass of cloud is lighted up by vivid flashes of lightning,—the air, at first hot and dry, becomes cool and grateful,—the dust suddenly subsides, and the peculiar smell from the plains tells that the longed-for rain is coming. At last big drops fall, louder and nearer sounds the “artillery of Heaven,” as if all the ordnance of British India were roaring around! Gradually the storm-cloud sweeps away—the thunder dies in the distance, and a steady down-pour of rain sets in for days.

During the monsoon the temperature in the shade ranges from 75° to 85° Fahrenheit; vegetation progresses rapidly—the mountains becoming clothed with verdure in a few days.

\* A machine, resembling that used in winnowing corn, by which a current of air is forced on a damp matting suspended in front of the door.

Now and then the sun breaks out strong and fierce, the atmosphere becoming laden with vapour from the dank soil. Then it is that sickness appears, and cholera sweeps over the land. It has, however, seldom time to seize many victims before the cold weather begins, and the climate becomes cool and healthy.

Dr. Maury, in his *Physical Geography of the Sea*, says, with reference to the formation of monsoons—"They evaporate, from the Bay of Bengal, water enough to feed with rains, during this season, the western shores of this bay, and the Ghauts range of mountains. This range holds the relation to these winds that the Andes of Peru hold to the south-east trade-winds—it first cools, and then relieves them of moisture, which they tumble down on the western slopes of the Ghauts."



## CHAPTER III.

Departure for Scinde, Western Ghauts again—Kandala—A Man drowned—Discomforts of the Sea Voyage—Cholera—Kurraheec—Scenery—Familiar Birds—Climate—Flora—Pearl-oyster—Caucasian Ibex—Pelicans—Game Birds—Woodpecker—Bush-thrushes—Bulbul—Serpent-eagle—Insects—Crocodile Pond—Indus—Scenery—Alligators—Audeity of the Go-vind-Kite—Sutluj—Ferozepoor to the Himalayas.

ON the road between Poonah and Bombay there is much to interest and delight ; at Kandala the traveller is surrounded by a varied fauna and flora. What finer sight than that which greets him at day-dawn on some cool November morning, as he wends his way through the defiles, or by the sides of the little rice-fields ?—

“ See how at once the bright refulgent sun,  
Rising direct, swift chases from the sky  
The short-lived twilight ; and with ardent blaze  
Looks gaily fierce through all the dazzling air.”

The roads are covered with heavy-laden waggons, toiling up the steep ascent, while groups of natives are enjoying their hookahs by the road-side, under the grateful shade of the mango and banyan.\* The mountain-breeze is cool, even in the heat of summer. The European houses are situated on the sides of the great ravines, with shady avenues and pathways winding through the groves and around the rocky ridges. Kandala is a little highland paradise, and a fitting

\* The author refers to some sixteen years since, before any railways existed in India.

place for the climate-worn European, who may seek to restore his health by its pure and invigorating air. I spent a delightful day toiling over these rugged ravines, and after a hard scramble at length gained the camp, and was reclining on my couch, when a soldier rushed into the tent, to inform me that one of his comrades was drowning in a pond close by, and no one could attempt to save him, in consequence of the dense weeds which covered the surface. On repairing to the spot we found the poor fellow in his last struggle, manfully attempting to extricate himself from the meshes of rope-like grass that encircled his body; but, to all appearance, the more he laboured to escape, the more firmly they became coiled round his limbs. At last he sank, and the floating plants closed in, and left not a trace of the disaster. After some delay, a raft was made, and we put off to the spot, and sinking a pole some 12 feet, a native dived, holding on by the stake, and brought the body to the surface. I shall never forget the expression of the dead man's face—the clenched teeth, and fearful distortion of the countenance, while coils of long trailing weeds clung round his body and limbs, the muscles of which stood out, stiff and rigid, whilst his hands grasped thick masses; showing how bravely he had struggled for life. Such was the end of Private John Malony. He had been the life and soul of the detachment with which I sailed from England; and used to keep his companions in roars of laughter, on many a dull evening on shipboard, with his merry Irish songs.

The descent from the Deccan plateaus into the plains brought us into a very different climate. The thermometer rose from 65° to 92° in tents; this, however, was little, compared with the miseries of an over-crowded vessel. The fatigue and discomforts of the officers and men were great,

but not to compare with those of 100 women and 150 children, during the four days we spent on board the E.I.C.'s steamer *Mozzuffur* during the voyage to Kurrachee. To call it discomfort is a mild term, when it is considered that 1100 human beings were huddled together like sheep in a fold, lying down at night anywhere, as best they could, unprovided with covering beyond the clothes they wore, exposed to the biting cold of a December night and the scorching heat of mid-day. The regiment had suffered from cholera before leaving Poonah, and a few cases continued on the line of march; twenty-five persons died immediately after we arrived at Kurrachee. We imported the disease to Scinde, and had it not been that the sick were isolated from the inhabitants and other corps in garrison, by being placed in barracks at a distance, there is no saying what might have been the result; yet, in those days, no one seemed inclined to admit that the disease was communicable in any way. The doctrine of the non-infectious and non-contagious character of cholera no doubt received considerable support from the desire on the part of communities to prevent panic; but we find now that the contrary principle is the best, by arousing public attention to the threatened danger, and the adoption of sanitary measures to prevent the spread of this formidable and fatal malady.

After Poonah the scenery of Kurrachee, in 1849, wore no very inviting aspect—long tracts of sandy waste and level shore; everything, animate and inanimate, appeared as though just emerged from a dust-storm. Hedges, trees, and dwellings looked hoary, as if covered with the frost of an English winter, not a blade of grass visible; and except the palm, cactus, and a few stunted shrubs, the surrounding country was one desolate and dreary wilderness.

During the cold months the sun is powerful at mid-day,

but the nights are cold and frosty. We waded along, ankle-deep in the heavy sand, towards the station, about  $1\frac{1}{2}$  mile, with a companion who (by way of cheering our drooping spirits) informed us, that four years previously he had lived at Kurrachee, *in a tent*, where the thermometer was often  $130^{\circ}$ ! This, however, we found was not a common occurrence, for during the forepart of the day the sea-breeze sets in and lasts for several hours, so that, take it all in all, the heat of Kurrachee is not so severe as that of many inland stations. The native city is built on an eminence near the sea. Like many Oriental towns, its streets and bazaars are abominably filthy; and, besides the usual hubbub of crowds of natives, goats, and sheep, there is a sickening atmosphere, redolent of rancid butter, assafoetida, and divers other powerful, and not particularly pleasant, odours. Although the Turkish cemeteries at Scutari and Constantinople greatly exceed, in extent of area, anything of the sort I have seen in Hindoostan, the size of that outside the city of Kurrachee is very striking. Nothing shows the antiquity of Eastern towns more than their graveyards; and, even without the testimony of history, those around Kurrachee give evidence of its existence for many centuries. The gravestones are painted white, and covered with various devices in red, becoming thus prominent objects in an otherwise desert plain. Here and there are tall poles, from which float triangular flags of divers colours. We may wander through miles of sepulchres without meeting a symptom of animated nature. Now and then a solitary pied stone-chat (*Saxicola picata*) may be seen hopping about. This familiar little creature I observed at Poonah. It is plentiful in and around Kurrachee, and is, in fact, the "robin" of Scinde.

To one just arrived from the Deccan, the chimney-tops at Kurrachee are suggestive of the comfort of "my ain fireside"—

a pleasure that none appreciate but those who have long been strangers to its genial influence. In consequence of the constant shifting of the sand, there are no regular highways in Lower Scinde. About noon, when the west wind sets in, clouds of sand sweep across the country, penetrating through the minutest chinks and crevices. Whirlwinds (or *devils*, as they are commonly called by Europeans) are of frequent occurrence. At a distance they look like revolving clouds of smoke, shooting upwards fully 200 feet. These cycloidal movements often last for upwards of half-an-hour, and carry with them whatever light substances they may encounter. After gliding along for some distance they finally disappear. The meeting of two opposite currents of air is no doubt the cause, inasmuch as a whirlwind was always seen to commence at the corners of two ranges of buildings placed at right angles to each other.

There is a remarkable difference in the temperature of the wind, after it has traversed two miles of the desert. I made the experiment on horseback, in order to avoid as much as possible reflection from the sand, and found, during a hot forenoon in December, that the thermometer stood in the sun at  $75^{\circ}$  on the sea-shore, while two miles inland it was  $90^{\circ}$ .

There are few countries more devoid of natural beauty than Scinde. Pyramids seem only wanting to render its scenery Egyptian, and viewed from any eminence, the neighbourhood of Kurrachee is by no means prepossessing. Northwards, as far as the eye can reach, is one vast plain of sand, studded with *scrub*, or heaps of shingle. Westward, in the distance, are seen the desolate and sun-burnt mountains of Beloochistan. Looking seaward, we have various lines of building, the European barracks and dwellings,\* half-hid

\* I speak of the year 1849 ; since then Kurrachee has risen to a good-sized town.

among cactus and euphorbia hedges, which surround gardens, where the usual tropical fruit-trees and vegetables struggle for existence. Among others may be observed the graceful, prickly Jerusalem thorn, a laburnum-like tree, with feathery foliage, and pretty yellow flowers in loose and pendulous racemes. Here and there, at long intervals, are little clusters of date or cocoa-nut, while on the hills and rocky eminences

“Th’ acacia waves her yellow hair,  
Lonely and sweet—nor loved the less  
For flowering in a wilderness.”

As Scinde does not come under the influence of the south-west monsoon, its barren and sterile nature is to be attributed to this cause. Beyond an occasional shower, during the cold months, rain seldom falls. Were it not for the dews, nothing would grow on its arid plains; these are often so profuse that in the morning the sand appears as though a heavy shower of rain had fallen. The sun, however, soon dissipates the coolness of the morning breeze, and the sand getting dried begins to blow about with the sea-breeze, and drives us to seek the shelter of our bungalows, where every door, window, and verandah, is closed to prevent its entrance; but in spite of all our endeavours it penetrates into drawers and boxes, and, what is still more uncomfortable, into the bedding.

During December, and the two succeeding months, the cold at night is often severe, being frequently 32° Fahrenheit at daybreak, while at noon it often mounts to 75° or 86° in the shade. Such sudden transitions cannot be otherwise than injurious to European constitutions, and though many have stood these shocks for years, there is no mistaking the effects of the Scinde climate on those who long brave its influence—for tardy, and almost imperceptible as are its manifestations to

the individual, or those around him, the new comer is struck with the absence of anything like colour or freshness in the faces of his country people,—especially the gentler sex, whose rosy cheeks soon lose their northern bloom.

The natives of Scinde are a manly-looking race, but in point of physical powers the Beloochees greatly excel. Their well-knit frames, dark complexions, and flashing eyes distinguish them from their more peaceable brethren of the plains. Accoutred with sword, shield, and matchlock, the Beloochee has proved himself a valiant warrior in many a hard fight, from the day he first met the British on the field of Meanee, to the last grand struggle in the Northern Provinces.

The turban is the usual head-dress of the natives. They likewise wear a cap very like a black hat turned brim uppermost.

The pearl-oyster abounds in eleven or twelve fathoms of water all along the coast of Scinde. There was a fishing in the harbour of Kurrachee, which had been of some importance in the days of the native rulers, but was gradually declining.

The shore was covered with heaps of shells—each having a little perforation in its centre, marking the place where the pearl is found. Workmen were employed clearing away the sand, and carefully winnowing the dust and detritus of the shells, in which, now and then, minute pearls are found. The largest shown us was scarcely bigger than a pin's-head, and evidently of very little value, for we could purchase for five shillings as many as would cover the surface of a sixpence.

A "porpoise" is very common in the harbour, and ascends the Indus and rivers of the Punjaub.

The Caucasian ibex (*Capra caucasica*) frequents the mountains of Beloochistan.

I was informed by my lamented friend, the late Dr. Gould,

that it is likewise a native of the Muree and other ranges on the north-western frontier of Scinde. The Caucasus, Asia Minor, Syria, and Arabia, are also countries which it inhabits. It does not appear to travel any great distance eastward, and is probably replaced on the higher ranges of Afghanistan and Persia by its noble congener the Himalayan ibex.

The Caucasian ibex has the hair short and dark brown, with a black line down the back. The beard is also black. Like the European and Himalayan animals, the horns are also bent backwards, but they differ in being more slender and tapering. In the latter, moreover, the horns are three-sided, and the anterior and posterior surfaces sharp, and generally smooth, with the exception of a few irregular tuberosities on the frontal aspect.

Like the other species, it frequents dangerous and inaccessible places, such as bleak and barren mountain-tops.

The chukore, or Cabool partridge, imported from Afghanistan, is sold in the bazaars. Both the gray and black partridges are common in cultivated localities of this neighbourhood. In the Government Gardens I killed a woodpecker, said to be peculiar to this country.

The Scinde woodpecker (*Picus scindianus*) is distinguished from the other pied species by having the sides of the body dirty-white, and a broad streak of black down the side of the neck from the base of the lower mandible.

The Mahratta woodpecker (*P. mahrattensis*) is also not uncommon. Sand-shrikes (*Lanius arenarius*) are plentiful in cactus-bushes in the open country; and in the dense foliage of the gardens the white-fronted flycatcher (*Rhipidura albo-frontata*) is often seen. In habits it resembles the broad-tailed species, but the clearness of the white on its body and forehead will suffice to distinguish it from the other.



The striated babbler (*Malacocircus canclatus*) is known by the light brown striæ on its back—lower parts dirty-white. It is less in size than the pale-eared babbler (*M. malcolmi*), likewise found here. The habits of the two are similar, frequenting hedges and close cover, where they are usually seen in flocks.

The white-eared bulbul (*Rotocompsa leucotis*) is not, I believe, found in the Deccan, although plentiful in this country and the Punjab.

The short-toed or serpent-eagle (*Circæetus gallicus*) is often seen soaring over dwellings, but more frequently perched on a tree-top in the centre of a field, watching for its favourite prey; it lives principally on reptiles. I killed one whose stomach contained many small frogs. At a distance this bird might be mistaken for the common buzzard (*Buteo vulgaris*). It is, however, easily distinguished by the rufous white of the lower parts, with brown streaks. The total length is about 2 feet.

In Scinde (as in all desert countries) ants abound. The white ant (*Termites*), so plentifully distributed over Hindoostan, does not seem to be common at Kurrachee; at least I did not observe the sugar-loaf nests so characteristic of its presence.

There are many other species which make their nests in the open plains—entering by numerous holes in the surface of the sand. In some places the ground is literally riddled with these apertures. The large black species seen at Poonah is by far the most common. One day, during a ramble in the neighbourhood of Kurrachee, I observed a string of these ants extending from their nest across a plain for more than a quarter of a mile in the direction of an out-house or barn. Instead of carrying their eggs, these industrious little travellers were employed in stocking up supplies for future use. In the

usual steady double file they were proceeding to and from their nest ; one party moving slowly on, heavily loaded, each individual carrying a vetch-seed about twice the size of its bearer ; while the returning party hurried back for a fresh burden. I passed them again at dusk, and on the following day found them as busy as ever. What a vast granary they must have collected even in twenty-four hours !

After rain, or heavy dew, they bring forth their store, and spread the grain round the entrances of their nests to dry ; and, from some unknown cause, they often change their dwelling-places, carrying their grain with them.

Musquitoes are very abundant, and the common black fly, which seems to be indigenous to every clime, is here, as in all tropical countries, a perfect pest. In every stall of the bazaars it swarms in countless thousands, and, wonderful to relate, even in the centre of the desert, it continues to annoy and irritate the traveller.

During very cold weather in December a living female of the allied swift (*Cypselus affinis*) was brought to me, in a numbed state from cold, and the only one I saw during my short stay at Kurrachee. Its body was plump, and well covered with fat, but not a trace of food was discernible throughout the whole course of the intestinal canal. Perhaps this individual had been caught in the cold on its way to the more genial winter climates of Central or Southern India. Associating with minas and Indian jackdaws, are flocks of the common starling (*Sturnus vulgaris*). It frequents dunghills and fields.

The Indian wheatear (*Saxicola atrogularis*) is generally distributed over the sandy wastes in this neighbourhood. In general appearance and habits it bears a resemblance to its European allies. We see in this species the peculiar tinge of

plumage common to many birds of desert countries. The feathers appear as if they had been tipped with a sandy-white, or isabel-colour, obscuring more or less the darker shades beneath.

They run with great agility along the level plains. In this respect there is no bird can beat the Coromandel courier (*Cursorius isabellinus*). Flocks of these plover-like birds are often seen on the sandy wastes of Kurrachee and Lower Scinde. They are not easily observed, in consequence of the similarity of their plumage to surrounding objects. Locusts seem to be their principal food, and on these they feed sumptuously, for sometimes clouds of these insects scour across the country. The flesh of the courier is well-flavoured, pale, and delicate. They are easily shot, and as many as four or six may be killed at one time, in consequence of their crowding together when feeding on the plain.

The whimbrel (*Numenius phaeopus*) and curlew (*N. arquata*) are both found in the harbour; and associated with these birds, may often be observed a large pied species of plover. The flamingo (*Phoenicopterus roscus*) is often seen in flocks upon the coast.

The jackal (*Canis aureus*) is seldom visible during the day. At night packs of these animals prowl about the station, and at early morning may be observed skulking across the plains in the direction of their caves in ravines. Their wailing cry is very discordant. Often, in a dark night, the traveller is suddenly startled by the bark of a jackal—another at a short distance replies, and soon he is surrounded by ten or twenty—whose howlings are sometimes mingled with the hoarse bark of the hyena (*Hyæna striata*). Like the other, the hyena hunts at night, and is equally partial to carrion and putridity.

The cry of the jackal is peculiar ; it is composed of a succession of half-barking, half-wailing cries, on different notes. When properly pronounced there is no better illustration of it than the following words, set to the music of the animal's voice—

“ Dead Hindōō—Dead Hindōō !  
Whēre—whēre—whēre—whēre ?  
Here—here—here—here ! ”

Being suggestive of a straggler, suddenly discovering a dead body, and calling on the scattered pack to “ come and feast ! ” They have evidently a predilection for human flesh, and sometimes, especially during epidemics or on battle-fields, they have rare opportunities of indulging their appetites. It happened that during my stay at Kurrachee a pack of these animals found their way into a hospital dead-house and mutilated two bodies of persons who died of cholera.

In all the desert parts of Scinde the crested calandre lark (*Galerida cristata*) is plentiful. It is not unlike the skylark, but does not “ up to heaven gates ascend.” It is generally met with in flocks during the cold months.

Although I have not shot or seen the chimney-swallow in Scinde, I have observed specimens in collections made in Lower Scinde during the cold months ; also the beautiful fairy roller (*Irena puella*), rare in the northern parts of India.

The Crocodile-pond, or “ Mugger-peer,” as it is called, lies to the north-west of Kurrachee. The journey for the first few miles is of the usual uninteresting description—sandy plains, intersected with deep fissures and ravines, or studded here and there with “ scrub,” the oleander-leaved spurge (*Euphorbia nerifolia*) plentiful in all waste and desert parts of Scinde.

Emerging from a defile which leads through a low range of hills, the traveller enters on a desert waste, stretching westward towards the mountains of Beloochistan. In the far distance two oases are visible, whose date and cocoa-nut trees are refreshing to the sight after eight miles of the most monotonous scenery. In the vicinity of the nearest grove is an ancient burial-ground, where may be observed several curiously-carved gravestones.

I visited the crocodiles (*Crocodilus palustris*) on two occasions at an interval of several years, and although during that time they had been seen by hundreds of Europeans, including a certain class of mischievous young Englishmen (whose chief amusement, we were told, had been to shy stones and sticks down the throats of the gaping monsters as they lay basking on the banks of the pond), yet there seemed no diminution in their numbers, and the wild and unearthly interest of the scene was to us as great as ever. From beneath a little banyan-tree on the verge of the pond, the spectacle, during the steaming heat of a mid-day sun, might call up to the mind of the geologist the eons of the world, when the "great monsters" wallowed in the seething waters of the Oolitic ages, when the mighty "Ichthyosaurus," and a host of "fearfully great lizards," dragons, etc., reigned supreme over sea and land. And as the date-palm now waves its shady boughs over the crocodiles of Mugger-peer, so then did the magnificent tree-ferns, gigantic reeds, and club-mosses, shelter their extinct predecessors.

The greater pond is about 300 yards in circumference, and contains many little grassy islands, on which the majority of the crocodiles were then basking ; some were asleep on its slimy sides, others half-submerged in the muddy water, while now and then a huge monster would raise himself upon his dimin-

tive legs, and waddling for a few paces, fall flat on his belly. Young ones, from a foot in length and upwards, ran nimbly along the margin of the pond, disappearing suddenly in the turbid waters as soon as we approached. The largest crocodile lives in a long narrow tank separate from the others. The Fakirs, and natives who worship in the neighbouring temples, have painted his forehead red,—they venerate the old monster, making a salaam to his majesty whenever he shows himself above water. A handsome young Beloochee, whose occupation it was to feed the animals, informed us that the said king was upwards of two hundred years old ! (?) and that, by way of a “tit-bit,” he was in the habit of devouring the young crocodiles. During our visit this enormous brute was asleep on the bank of his dwelling-place, and seemed quite indifferent to our presence, although we came within a foot of him, and even attempted to arouse him by rubbing his nose with a leg of goat’s-flesh, which, however, a young one greedily seized and dived under water. Our attendant tried in vain to excite their ferocity, but beyond a feeble attempt to snap their trenchant teeth, the animals showed no disposition to attack us.

A pony was wading about in the pond and feeding on the grassy hillocks, but the crocodiles took no notice of him.

The water in the pool felt cold, although fed from two hot springs, one of which was of so high a temperature that I could not retain my hand in it ; yet animal life existed, for I found where the water bubbled up from its sandy bottom, and in the little lade running to the tank, abundance of a species of small black spiral shell, which Mr. Woodward informed me is “very like some in the British Museum, named *Melania pyramis*, an allied species of which frequents the

river Jordan."\* The other spring gushes from under a bed of limestone, containing numbers of fossils, chiefly coral, and other marine zoophytes. We had a refreshing bathe in a reservoir close by; the temperature, though not so high as the last, was still warm and pleasant. I should be sorry, however, to repeat the experiment, not from the chances of meeting with a crocodile (for, I believe, the Fakirs of the temple guard well against such accidents), but from the circumstance that (as is generally the case all over the East), lepers, and persons affected with loathsome diseases, repair to such localities.

The crocodiles dig deep in the sand, under the neighbouring date-trees, and there deposit their eggs. Quantities of deciduous teeth, of various sizes, were strewn along the slimy sides of the pond.

Strangers are expected to stand treat, not only by the Fakirs and natives, who gain a livelihood by hanging about the pond and showing the monsters, but even the crocodiles themselves seem to anticipate a feast, and on the arrival of a party come out in unusual numbers. Accordingly, we had a goat slaughtered, during which operation the brutes seemed to rouse themselves, as if preparing for a rush. Then our guide, taking piece after piece of the flesh, dashed it on the bank, uttering a low growling sound, at which the whole tank became in motion, and crocodiles, of whose existence we had been before ignorant, splashed through the shallow water, struggling which should seize the prize. The shore was literally covered with scaly monsters, snapping their jaws at one another.

They seize their food with the *side* of the mouth, and toss the head backward, in order that it may fall into the throat.

A few were observed to bolt their portion on shore after

\* The temperature of the water in the lake was 127° Fahr.

very slight mastication, but the majority, anxious to escape from their greedy companions, made instantly for the water, and disappeared with the piece of flesh sticking between their jaws.

Our young Belooch friend informed us that they generally swallow their food at once, and do not, as has been asserted, bury it until it becomes putrid ; also that other large individuals besides the old king frequently devour the young soon after they are hatched. Crocodiles wallowing in the mud of the Nile, or gavials in the Indus, are sights which one is prepared to encounter ; but the traveller may wander far before he meets with a scene so strange and unexpected as that just described. How these animals found their way inland to this solitary oasis we could not discover. It can only be surmised that they had probably been introduced by the natives.

We left Kurrachee in a small steamer "one fine sunny morning" towards the end of January, and reached the Delta of the Indus in ten hours.

The scenery along the Scinde coast was devoid of interest until, nearing the river, the dreary and sandy wastes gave place to a rich green carpet, on which sheep, goats, and cattle were pasturing.

Tall reeds line the shore, out of which flocks of pelican and waterfowl, scared by the approach of our little vessel, rose and sought more secluded retreats among the numerous channels, creeks, and islands which abound at the mouths of the Indus. The porcupine is not uncommon in the neighbourhood ; we came on a dead specimen.

The govind-kite followed in the wake of our vessel, sweeping obliquely downwards, and seizing with its talons any substance thrown overboard ; and whenever we drew up to cook or take in fuel, numbers of Indian jackdaws hovered



at the stern, within a few feet of the water, picking up whatever they could lay their bills on.

This noisy bird assembles in numbers, and assails one on entering a grove with a deafening clamour of cawing and croaking. The only alternative is to show *a gun*, when they decamp with all possible speed.

Its nest is built of twigs, and is lined with wool or any other soft substance. As many as twenty may frequently be seen in one tree. The Indian jackdaw has all the craft and more familiarity than any of its congeners, as it rivals them in the beauty of its glossy gray and black plumage.

We sometimes observed varieties with white markings on the wings and back, but these were dispersed throughout separate flocks, and did not seem to form any characteristic of what might be called a race.

A voyage up the Indus, after a lengthened sojourn at Kurrachee, is very exhilarating. To the lover of nature there are few better fields for research. Let him choose the cold months, when the river is well stocked with wild-fowl, and he will find ample occupation.

How different is the scene in June, when the inundation has taken place, and nothing is to be seen but a vast sheet of water, tenanted only by a few indigenous animals, such as the Indian alligator and pelicans—the greater part of the migratory birds have fled to the far north, and are rearing their young on the banks of the lakes of Central Asia. Again, as the hot season declines, long trains of cranes, storks, spoon-bills, etc. etc., make their appearance; and in a few days every creek and shallow seems alive with myriads of these interesting wanderers. The scenery is constantly varying. At times the river looks like an almost boundless waste of

water, stretching far away inland on both sides, intersected with numerous islands ; or, gliding tardily between high banks of alluvium, dense jungles of tamarisk and underwood alternate with open and highly-cultivated tracts of country, which are irrigated from the river by means of Persian wheels, worked by camels. At every turn of the river the traveller hears the dull creaking sound made by these machines.

Fields of wheat, barley, grain,\* and mustard gladden the eye. The last is cultivated for its oil, which the natives burn instead of that of the cocoa-nut, generally used in the Deccan.

The mud villages are shaded by groves of mangoes, which may be seen stretching in lines across the country, while here and there dense shikargahs† (formerly the hunting-grounds of the Amirs of Scinde) vary the landscape. These are now fast disappearing, their wood being used as fuel for the river-steamers.

The channels of the Indus, and indeed all the great northern rivers of India, are continually shifting, in consequence of the constant and copious deposit of alluvium going on ; the mud banks are also wearing away at a greater rate than formerly, and since the introduction of steamers, for as the swell gradually undermines them, large masses fall in with a thundering noise.

The water of the Indus is thick and muddy, but filtering, or the addition of a few grains of alum, renders it clear and drinkable.

It is asserted that there is an undercurrent in the Indus, so powerful as to suck down whatever disappears beneath the surface of the water ; we had, however, a pretty strong

\* *Cicer arietinum*.

† Game-preserves.

proof of the contrary, in the case of a boy who fell overboard and passed under the steamer, reappearing on the other side, where he was picked up not much the worse for his ducking.

The native boats are of the rudest description—flat-bottomed, raised at front and stern, something like the ancient British galley. The large square sail is all the canvas they carry. Numbers of these primitive crafts may be seen upon the river in every direction. The Indus is seen to the best advantage when the sun is setting in all his fiery beauty, and long trains of pelicans sweep along close to the surface of the river, which, as far as the eye reaches, is studded with native boats, and here and there a sandbank lined by myriads of water-fowl; shoreway there is little attractive save a clump of date, or a tope of acacia, etc., which add however to the true Oriental character of the scenery. The handsome little black-billed tern (*Sterna javanica*) is abundant. It is to be seen searching for fish in the little shallows, or by the banks of the river, congregating in situations where its prey abounds—now hovering and flapping its long pointed wings—then, with a scream, darting downwards, with unerring accuracy, and bearing off its scaly prize in triumph.

Athwart the surface of the river, its little wings almost touching the water, shoots like an arrow the beautiful Bengal kingfisher (*Alcedo bengalensis*), now and then dipping its green and azure plumage in the muddy stream. So closely allied is this species to the European bird, that unless minutely examined there is no knowing the one from the other.

The brahminy kite (*Haliastur indus*) is a handsome bird of prey; although wanting the grace and rapidity of flight of the govind-kite, it has the advantage as regards beauty and colouring of plumage. Individuals may be seen frequently

stooping on fish in the river, or hovering over the shallows. The head, neck, and irides are white—the rest of the body chestnut. The Luzonian (*Motacilla luzoniensis*) and Dukhuu wagtails (*M. dukhunensis*), and common sandpiper (*Actitis hypoleucos*), are constantly seen on the river-bank.

Less frequently may be observed the greater and lesser white-rumped sandpipers (*Totanus glottis* and *stagnatilis*). Sand-martins (*Hirundo riparia*) build their nests in holes on the river-bank, which are sometimes riddled in this manner. Occasionally the rose-ringed parakeet (*Palaeornis torquatus*) takes possession of one of these nests for its own use, and is accused by the natives of robbing them and eating the eggs, which, however, seems doubtful.

One of the most striking birds to be seen on the Indus is the white-headed eagle (*Haliaeetus macrurus*); although closely allied to the bald eagle of America, the two species differ in many particulars. The Eastern eagle is usually seen perched on the stump of a tree, numbers of which are borne down by the annual inundations, and as the river subsides appear above water like the snags of the Mississippi. Fish are its chief, but not exclusive subsistence, as we many times saw them, during our journey, feasting with jackdaws and kites on the refuse of slaughtered sheep and oxen. The plumage of this eagle is subject to considerable variation—in reference to the young and adult bird.

Pelicans (*Pelicanus javanicus*) in pairs and in flocks were observed daily on the river, sailing leisurely down some narrow channel, their great bills resting on their crooked necks, or, scared at our approach, sought a safer retreat among the shallows and sandbanks far ahead. Their flight is in general heavy and laborious. In many the bill is bright orange—in some of a leaden-gray colour, varying with age. The two

species are not easily recognised until observed closely ; the roseate hue, however, of the white pelican distinguishes it from the Dalmatian, which is perhaps the more common. The barred-headed goose (*Anser indicus*) is very plentiful on the Indus and northern rivers of Hindostan, but only during the cold months. It is not so large as the gray-goose, and has a triangular-shaped black bar on the nape, another on the back part of the head. Both this bird and the crane arrive in vast flocks, during October, and spread all over the cultivated districts, where they do much damage to the young wheat and barley ; nowhere are they more abundant than on the Jhelum, between the city of that name and its junction with the Indus. I have seen specimens of the white-fronted goose (*A. albifrons*) that were shot near Suckur, and recognised it on wing several times.

The capital of Upper Scinde is situated a short distance inland. Like most of the native cities, it has its mud wall, crumbling fort, narrow and filthy streets ; its temperature is at all times very high—for, as a friend of mine remarked, “ cold weather at Hyderabad is a delusion.”

In addition to the usual pleasure of sight-seeing, I had an intense interest in tracing the scenes where the 22d Regiment had taken so glorious a part : we visited the fields of Meanee and Dubba, and the famous Residency, situated on the left bank, and shaded by a dense grove of mangoes.

Opposite is the village and station of Koteree, perhaps the most beautiful spot on the banks of the Indus in its course through Scinde.

The European houses are placed among terraces and groves of date and other trees ; their gardens, tastefully laid out, well stocked with vegetables and fruit-trees. We shall long remember the shady groves of Koteree, and a walk we

had there one cool morning in February—the Surat dove and Asiatic pigeon (*Turtur suratensis et humilis*) cooing overhead, and the “little birdies blithely singing;” there was a freshness about the scene we had not enjoyed for a long time. Even its green leaves, after the desert sands, brought up thoughts and associations of the haunts of earlier days.

Proceeding up the Indus, the scenery improves. As you near Sehwan, high mountain-ridges are seen stretching across the country in a northerly direction. The banks are covered with tamarisk, or dense forest and jungle. Birds are in greater plenty, and the surrounding country teems with animal life. Nature wears a more glowing robe.

As the sportsman threads his way through the jungle in quest of hog-deer (*Hyelaphus porcinus*), pigs (*Sus scrofa*), hares (*Lepus nigricollis*), or partridges (*Francolinus vulgaris et ponticerianus*), he feels a sort of nervous twinge as he sees in the mud by the side of a pond the broad rounded footprint of a tiger. There the fierce lord of the jungle has been skulking only a few hours previously! Then there is excitement when, suddenly emerging from the bushy labyrinth, the eye of the young Indian sportsman lights upon the graceful figure of the Houbara bustard (*Houbara macqueenii*), feeding on the tender shoots of the young barley! The Houbara is migratory in Scinde, and is found in the desert; but is plentiful in the cultivated districts along the banks of the river.

The eye of the Houbara is large, clear, and prominent. The yellow and black of the eye give a peculiarly brilliant appearance to the bird. Its flesh is much esteemed as an article of food. Hunting the Houbara in the open plain requires great tact and dexterity. Mounted on a camel, the pursuer

ranges the desert with his telescope until an individual is discovered.

This is by no means easily accomplished, in consequence of the plumage assimilating with the colour of the sand. He then commences to describe circles round the bird, gradually diminishing their circumference until he gets within shot, when he dismounts, using the saddle as a rest for his gun or rifle. The Houbara leaves Scinde at the beginning of the hot months, possibly for Persia, where it is said to be found at all seasons.

The bastard floriken (*Edicnemus crepitans*) is very common on the banks of the river. It is tame and easily shot, consequently little sought after by sportsmen.

The gavial or Indian alligator (*Gavialis gangeticus*) abounds in all the great rivers of Northern India. It is found in the Indus, from its delta northwards to near Attock, and up the Punjab rivers for a considerable distance, where it is most abundant. This may be owing to the constant traffic from Mooltan downwards driving them to seek the parts seldom frequented by steamers.

This species is easily distinguished from any of its congeners by its spoonbill-like snout. Its eyes are prominent, throat white, body long and tapering. The gavial delights to bask on the sandbanks and slimy inlets, lying on its belly, the snout at an obtuse angle with the neck. Ten or twenty may be frequently seen together, and as the steamer approaches they glide quietly one by one into their muddy bed. The larger are generally from 12 to 15 feet in length, but occasional individuals may be seen of far greater size. On shore the old are very tardy in their movements, but the young run nimbly along the sands. I have seen a gavial raise its head.

above water close to the paddle-box of our steamer, take a quick survey, and suddenly disappear.

The fishermen informed us that they now and then carry off a man; yet numbers of natives may be seen wading about regardless of their proximity.

The native mode of crossing the river is somewhat novel. Rolling in the folds of his turban all his goods and chattels, the Scindian inflates a dog-skin. This is fastened across his breast, and supporting his legs by means of a large chatty (mug of earthenware with a narrow mouth), which he holds firmly between his ankles. If his child has likewise to be conveyed, the youth seizes his sire round the neck, crossing his legs over his back, the head only above water, while the swimmer, with his arms free, paddles himself, his child, and property, across the muddy water of the Hydaspes.

With that bold and majestic flight so characteristic of the tribe, the white-bellied cormorant (*Graculus carbo*) is seen flying across the river, and although not so plentiful, the brown-necked species (*Graculus sinensis*) is not uncommon.

The stork is often seen in large flocks, distinguishable by their red bills and legs, white plumage, and black wings.

Wading in the shallows may be seen a solitary heron (*Ardea cinerea*), and

“ See where yonder stalks, in crimson pride,  
The tall flamingo, by the river's side ;  
Stalks in his richest plumage bright array'd,  
With snowy neck superb, and legs of length'ning shade.”

The pass of Sehwan has a picturesque appearance from the river, with its rocky mountains rising in terraces along the bank, and its old ruined castle, supposed to have belonged to the Alexandrian age.

For the benefit of sportsmen and naturalists, I would



recommend a visit to the pool near the village of Sehwan, which during the cold months is covered with wild-fowl; here we procured specimens of the shoveller (*Anas chrypeata*), castaneous (*Fuligula nyroca*), and tufted ducks (*F. cristata*), also the Gargany teal (*Anas querquedula*), and here I met for the first time the spotted-billed duck (*Anas perilorhynchos*). It is much larger than the mallard, and has a black bill with a red spot at the base, and less yellow—body speckled. This species is said not to be a resident, and breeds in the jungles on the river's bank. Towards dusk, the tern-like sheerwaters or skimmers (*Rhyrnchops*) appear in companies of from four to eight, skimming so close to the water that their curiously-shaped bills and the tips of their wings often touch; they never settle, but seem to glean their food as they fly along; what that was I could not discover, possibly small fish, moths, or locusts; the two last are often found floating on the surface of the river in great numbers.

One morning, at daybreak, I was amused at the curious evolutions of a species of water-gnat ephemera; it was about an inch in length, and of a white colour, with two very long hair-like processes (*setæ*) projecting from the tail. The rapidity with which these little creatures propelled themselves, with or against the current, surprised me. By the constant flapping of their wings upon the water, aided perhaps by their legs, and guided by their setæ, the least waver of which seemed to turn the little animal in less than a moment, they steered their way rapidly, facing the current boldly, leaving two tiny furrows in their lee like those of a steamboat; in fact they were in principle diminutive steamers. They evidently furnished food for fish, as we noticed myriads of small-fry catching them.

The tall minarets of Suckur are seen a long way off, and

the banks of the river, for some distance below the town, are densely clad with date and cocoa-nut groves. Opposite is Roree, looking like some stronghold, with its houses built one above another on a prominence overlooking the river.

The ancient fortress of Bukur is situated on an island opposite Roree. Here the river is considerably narrowed, and the stream powerful. The heat of Suckur is intense, and its climate unhealthy. The pulla or tamarind-fish is caught in abundance and by various methods, sometimes by fishermen perched on a narrow-necked earthenware mug, which serves the double purpose of support and a reservoir for his fish and tackle; others buoy themselves up by means of dog-skins kept inflated from a mouthpiece. Some ten or fifteen fishermen were dropping slowly down with the current.

A squall is a most exciting spectacle. From twenty to thirty boats may be seen tracking slowly up the river, each dragged by its own crew. Suddenly a breeze springs up, and all jump on board, and unfurl the large square sails, when away they speed; sometimes bumping up on sandbanks, or running into one another amid the yelling and screaming of the boatmen.

None earn their bread by the sweat of their brows more honestly than these simple boatmen of the Indus. From daylight to sundown they may be seen dragging a heavily-laden boat along the muddy river, often half the day knee-deep in water. When about to enter upon the day's toil, by way of wishing "God speed" to his little craft, her owner throws a handful of water on her bow, says his prayer, and then, arranging his toilette (composed only of a turban and waistband), he shoulders his rope, and singing some simple chaunt sets cheerily forth on his way.

As simple as his song are his modes of life. At night he

grinds his little hand-mill to make flour for his badgeree cakes, which, with a slight addition of curry, are washed down by the muddy water of the Indus. Yet in point of strength, and power of endurance, few surpass him.

The Indian owl (*Athene brama*) is numerous in the jungles.

The first time I met with the raven (*Corvus corax*)\* in the East was on the banks of the Indus, some distance above Suckur.

Daily during the remainder of the boat voyage, and until we reached Ferozepoor, numbers of ravens, crows, jackdaws, and bald-headed eagles, assembled on the debris of the cattle slaughtered for our use.

On these occasions I witnessed the daring sallies of the govind-kite. One afternoon, in particular, when the steamer was drawn up by the river's bank, a native was eating his "curry," when down dropped a kite, and, by means of its talons, actually tore the wings of a fowl from his mouth, devouring the capture as it sailed away. Great was the poor man's amazement, but his wife, who seemed to understand the habits of the govind-kite better than her husband, seized a stick, which she brandished over his head during the rest of the meal.

On a subsequent occasion, during our voyage up the Sutluj, we halted on a wet and sandy beach for the purpose of cooking. As the soldiers and their wives were returning to the vessel, carrying their plates of beef and rice, a flock of kites assailed them; darting, like so many arrows, on the laden platters, and bore off the contents. The sight was ludicrous in the extreme. One woman, from the clayey nature of the soil, was unable to extricate her feet, and

\* It is in every respect identical with the European bird.

remained, with outstretched arms, helplessly imploring assistance, as kite after kite, in quick succession, carried away her dinner!

The govind-kite is a great enemy to poultry, and sometimes pursues tame pigeons, which it tortures to death, by pursuing them until they fall to the ground breathless, and are thus easily despatched. The same predatory disposition seems common to other allied species, inasmuch as I have seen the black and Egyptian kites, in Nubia, capture pigeons in the same way.

The Indian peregrine falcon was seen several times during our voyage, and I found a nest on an acacia-tree, near the banks of the Sutluj. It was built of sticks and lined with wool, and contained two young birds newly hatched.

In dissecting an adult specimen, I found numbers of a species of round worm, from 8 to 12 inches in length, and the thickness of a common pack-thread.\* Coils of these parasites infested the abdominal cavity, under its investing membrane, and smaller sizes, of about half-an-inch in length, were common in the throat, gullet, and intestines. Still the bird (a female) was plump and in good condition.

The gotah-finch—white-bellied or singing babbler (*Chrysomma sinense*)—is plentiful in the jungles. Flocks of these curious birds may be seen flitting from bush to bush with a peculiar, feeble, fluttering flight. When frightened, the parties assemble in some dense bush, and commence chattering in low, sweet, musical notes.

The Sardinian starling (*Sturnus unicolor*) is likely to be confounded with the common starling, to which it assimilates in habits as well as general appearance. Sometimes both species are seen feeding together on dunghills and in fields;

\* I noticed the same in one killed in Nubia.

and although the former is the more common, the latter was often observed during our rambles on the banks of the river.

The pretty blue-throated warbler (*Cyanacula svecica*) frequents the mustard-fields and low scrub, frisking about like the robin redbreast. All specimens I have shot and examined in India had the spot on the breast rufous.

By the sides of tanks, and in damp situations overgrown with stunted rushes or carex, may be found the yellow-headed wagtail (*Budytes citreola*), generally perched on a tuft of the latter, its long hind-claw facilitating this position. There can be no difficulty in recognising this bird from other yellow wagtails, by the last-named peculiarity, and the head, neck, and lower parts being yellow.

The Brahminy goose (*Casarca rubila*) is often met with above Suckur. The male is a fine-looking bird, and measures about 29 inches ; the general colour of the plumage is rufous, with brilliant green on the wing-coverts. It is shy and wary, and not easily approached.

Flocks of mallards, teal, Gargany teal, and spoonbills, line the shores and cover the little islands. The spoonbills are easily distinguished by their white bodies and black legs. The pintail-duck is not uncommon, and now and then we killed numbers of that fine duck the red-headed pochard, distinguished by a prominent rufous crest.

On gaining the mouth of the Sutlej our party disembarked from the steamers, and made the rest of the voyage in native boats, thatched and covered over. In this way I had a better opportunity of observing the natural history of the districts we passed through, which, in point of fertility, increased as we proceeded onwards. Luxuriant crops of barley and wheat covered the country, the yellow tinge of the

ripening grain contrasted beautifully with the brilliant green of the gram-fields.

On the 10th of April we arrived at Ferozepoor, where we were delayed some time making arrangements for our march.

The great heat of summer was rapidly approaching, and we were glad when fairly on our way to the Himalayas. The route led through Loodiana and Umballah. As usual in the East, we commenced our marches very early, so as to get under cover by 8 A.M. When the cooling effects of a mussiek\* of water refreshed us for our breakfast, the remainder of the day was generally spent in endeavours to exclude from our tents flies, mosquitoes, and that prince of gallynippers, the sand-fly, whose bite produces a painful and irritable swelling.

The scenery of Ferozepoor, and for a few marches eastward, is not by any means attractive; beyond occasional cultivated patches, the country is covered with low, stunted scrub, sandy wastes, or jungles of tamarisk, acacia, cactus, or the milkweeds. This monotony was, however, compensated by the herds of antelopes (*Antelope bezoartica*) often met with in the open, and affording excellent long shots for our best riflemen.

The black buck rivals any of the deer tribe in grace and elegance, as it certainly excels in swiftness of foot. Its spring is particularly grand, as when, wounded or scared by the shot, it stands motionless for a moment, and then like lightning bounds across the plain, reminding us of Moore's beautiful lines,—

“ Our sands are bare, but down their slope  
The silvery-footed antelope  
As gracefully and gaily springs,  
As o'er the marble courts of kings ! ”

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\* A skin used for carrying water.

On approaching Loodiana the landscape becomes really beautiful. Mango-topes, and fields of grain and sugar-cane, cover the plains, while here and there are seen the strongholds of the old Sikh chieftains.

The road leads through the field of Aliwal, on which we encamped.

It has been said that the descriptions of the Peninsular battles received additional grandeur from the spirit-stirring pen of the talented narrator—that many who witnessed them could scarcely recognise them when dressed in the glowing language of the soldier-historian. Much has been said of Aliwal, but candid witnesses give a far different account from that written at the time.

I wandered over the field with one who had been present at the engagement; he assured me, and his testimony has been corroborated by many others, that a fruitful imagination was at work when the official account was drawn up. His words were:—

“Aliwal was the *battle of the despatch*, for none of us knew we had fought a battle until the particulars appeared in a document, which did *more* than justice to every one concerned.”

But the public gulped it down, and, like many of our Indian battles and Indian blunders, the final issue of the struggle disarmed criticism.

As an Irishman would say, “We gained a disadvantage at Budiwal,” by the baggage of the army falling into the hands of the enemy; *that* no exaggeration could well turn into a victory; but shortly afterwards, a few shots, and the charge of a squadron or two in pursuit of a host of retreating Sikhs, were

\* Bishop Heber, in his *Journal*, says, “Lions are met with near Loodiana and Almorah.” I cannot vouch for such being the case with reference to the latter locality, but certainly no lions are seen nowadays in any part of the North-west Provinces.

magnified into a grand combat, and thus the plain of Aliwal has been recorded as the scene of one of India's Marathons.

The Indian ring-dotterel (*Himantopus philippina*), peafowl, common quail, black and gray partridges, are plentiful in grain-fields. The green bee-eater is very common, and usually roosts at night in societies, perching as close to each other as possible ; in that way a string of from ten to twenty may be often seen on one branch. The common mina and its close ally the bank or gingi grackle are often noticed ; the last is distinguished by its reddish bill and eyelids. Flocks of this species were often seen on the banks of the Indus and with cattle in the fields. In the middle of a tamarisk jungle, many miles from human habitations, I found the skull of a bullock suspended from the branch of a tree, and much to my surprise a sparrow's nest and eggs were discovered in the interior, showing that this species is not partial to civilised life.

Soon after leaving Loodiana, the stupendous Himalayan chains, with their snow-clad summits, were seen far away against the blue sky eastward.

Daily, as we neared the lower or Sewalik range, the scenery became more attractive. Dense jungles, or wooded tracts of hill and dale, gladden the weary traveller, and cheer up the invalid, on his way from the torrid plains. He must indeed hail with delight the little village of Kalka, at the foot of the mountains, the starting-point for those proceeding to the sanatoria at Kussoulee, Subathoo, Dugshai, Simla.

I can never forget how eagerly I longed to mount the steep ascent before me ; for in a few hours you can be transported to a temperature of 70°, instead of 80° in the shade—truly delicious, after the feverish heat of the plains, and the dust and fatigue of a march in the month of April.



## CHAPTER IV.

Division of the Himalayas into Regions—Scenery of the Lower Ranges—Climate—Magnificent View—Productions—Strange Way of putting Children asleep—Familiar Birds—Cuckoo—Black Partridge ; its Habits and Haunts—Barking Deer—Gray Partridge—Hill Wagtails—Storms—Woodcock—Snipe—Spotted Eagle—Bulbul—Bearded Vulture—Bare-headed Vultures.

THE Western Himalayas may be divided into three regions.

1st. The lower or Sewalik region, comprehending the lesser ranges which border the plains of India, and differ but little from the latter in climate and natural productions. This region extends to an elevation of about 3000 feet above the level of the sea.

2d. The middle or forest region embraces the highly-cultivated and forest tracts, where nature wears the garb of the temperate zone.

3d. The upper or snowy region, comprising the tablelands and mountains of Thibet, Ladakh, etc., extending from the stunted birch at 8000 to 9000 feet above the sea-level to the limits of perpetual snow. The fauna and flora of this region are distinct from the foregoing, inasmuch as its animals seldom descend to the lower zones unless driven by the rigors of winter, and its plants present an arctic facies. The geological features vary much, from the upper and mid tertiary beds of the lower hills to the secondary and azoic rocks

of the middle and upper regions. But what gives a most characteristic appearance to each of these belts is their flora. Although perhaps not so well defined as that of the Andes, still the tropical, temperate, and arctic forms preserve their position with marked regularity. Thus the naturalist from Kalka, at the foot of the Sewalik range, on his journey by the hill-road to Simla, can trace without difficulty the gradual botanical changes, from the stunted palm-tree to the gnarled oak, on to the stately pine, and thence to the lichen and rhododendron. The journey through the mountains to Simla and other hill-stations is usually performed by a litter, sedan-chair, or on horseback. The stages are easy, and there is tolerably good accommodation at the various halting-places. So marked are the gradations of climate, and so rapid, that from the torrid heat of the plains, and 90° Fahrenheit in the shade, one may be easily transported in forty-eight hours to a temperature below zero. The scenery of the lower ranges is exceedingly striking and beautiful. I felt as if suddenly conveyed to the temperate zone, and more especially when the stately cheer-pines, wild roses, jessamines, violets and dandelion met my view ; but, however, there was an admixture of stranger plants and trees peculiar to the region, then quite unknown to me, such as the coral-tree with its gorgeous red flowers, and oaks with laurel-shaped leaves.

The mountains forming the lesser ranges which border on the plains of India present in general great broken chains running for the most part parallel and from east to west, separated by broad valleys called khuds ; in the interior this regularity is less observable, and the mountains, instead of rounded summits, have a bold and well-defined outline.

The rainy season commences on the lower ranges towards the end of June. After a few showers vegetation springs up

almost magically. Mountain-sides, that before appeared bare and desolate, became clothed with luxuriant vegetation in a few days. The fir (*Pinus longifolia*) crowns the mountain-brow, while in the valleys flourish oak, walnut, and mulberry. Cherries, apricots, and plums, are ripe before the commencement of the rains ; however, in point of flavour, none of these fruits are to be compared with the productions of Cashmere and Ladakh. A tendency to double returns in one year may be observed in some fruit-trees, for during genial November weather I have seen cherry-trees in bloom, and even the fruit ripening until checked by the cold of the following month.

The monsoon ceases towards the end of August, and is succeeded by clear skies and a mild temperature. About the middle of November the cold weather sets in, and the distant peaks are seen tipped with snow. In January it often falls on the ranges next the plains, and for six weeks at this season the climate is almost British.

From April to June the thermometer averages from 76° to 80° in European houses ; but, though at mid-day the heat is often very oppressive, the mornings and evenings are cool and agreeable.

It is a splendid sight to behold the moon on a clear night rising over the tops of these mighty mountains, or the bright sun casting his last rays over the snowclad sides of the sacred ranges of Jumnootri and Ghangutri. I can never forget the magnificent panorama which burst on my view when hunting one afternoon :—I had wandèred rather farther than usual, so that I found myself near the summit of a high peak as the sun was setting. Before me stretched, far as the eye could reach, from east to west, one vast chain of mountains. There was the noble peak of Kilas, 21,000 feet above the level of the sea, and others, shooting their crests to the

sky; some capped with snow, others half-covered, with bare dark patches intervening, and all the various shades of colour produced thereby. The sun's last rays gave a fine pink appearance to the snow, the cool breeze came puffing like a trade-wind, while I gazed on in wonder and astonishment. Anon the scene changed; no more the golden rays were visible, for the sun soon sank behind the lofty western mountains, and left the deep blue sky and the desolate waste of scenery dim and indistinct on the distant horizon.

The soil of the mountains and valleys is very productive. On the mountain-sides small terraces are made, one above another, and irrigated by turning on the nearest stream, which, if distant, is conveyed by means of hollow trees. Rice, wheat, barley, indian-corn, and batu,\* constitute the staple products of this region.

Every valley (or khud) has its little stream, whose banks are covered with shrubs and trees, sometimes so dense as to be impermeable, thus contrasting with the higher elevations, where we find the rhododendron and forest trees in all their magnificence and beauty.

As the productions of the Himalayas vary, so are there varieties in their scenery. Each region has an attraction peculiar and distinctive, whether among the tangled jungle of the lesser ranges, or high in the region of forest, or still further up among the stunted birch, upon the confines of eternal snow.

The natives of the lower Himalaya ranges (Paharees, as they are called) have little in common with their neighbours in the plains of India.

They are rather under the middle height, spare and wiry, with copper-coloured skins. Some of the women are

\* *Amaranthus cruentus*.

very fair and handsome, although they have not the erect and graceful carriage of the Hindoos.

Goitre is very prevalent after the age of thirty.

The habitations of the natives are usually flat-roofed, and built in the bottoms of ravines, where the heat is extreme in summer.

The following curious custom prevails during the summer months :—Children are placed on straw beds, generally covered over, and put beneath a small stream, which is made to play upon the temple, by means of a piece of bark shaped like a water-spout. In any shady spot one or two children may be seen undergoing this ordeal, while their mothers are toiling in the adjacent field.

Natives have informed me that the children soon get accustomed to this treatment, falling asleep when placed under the stream, and awakening so soon as the water ceases to play on their temples.

Although many are said to die from this novel hardening system, it must be confessed that a healthier race than the survivors are not to be anywhere met with.

It is a study for a painter to mark the fair mother, bending over her little child as it lies in some shady bower, formed of pomegranate, wild-fig, and acacia, wreathed with woodbine and the many gorgeous exotics of that region in all their wild luxuriance and beauty.

It is, moreover, in such situations that the ornithologist will find an endless variety of interesting objects. Let him stray by the clear and gushing mountain-stream, o'erhung and canopied by the umbrageous plantain, the mulberry, or willow. He must creep along gently, for the little fairies are shy and easily alarmed. See ! the blue water-thrush (*Myiophonus temminckii*) perched on that half-submerged rock ;

its sweet and melodious note is ringing through the dell. The paradise flycatcher is darting, fairy-like, from tree to tree. What is that wagtail-looking bird that flutters along the water's edge, and seems to delight in frisking about where the stream runs fastest, or where the rushing cataract sweeps and dashes on? That is the beautiful spotted forktail (*Enicurus maculatus*). The plum-headed and rose-ringed parakeets (*Palæornis cyanocephalus* and *torquatus*) are chattering among the leaves overhead. He may look long ere he observes them, for their green dress suits well with the surrounding foliage. A harsh scream, and they are away, darting like arrows down the ravine.

See! that is the gaudy red-billed pie with its long tail, which it jerks so gracefully, and chattering like a magpie, as it hops along the branch of yonder walnut-tree. The yellow and red vented bulbuls are chirruping in bush and brake. The kalij pheasant (*Euplocomus albocristatus*) and peafowl start up before him and seek the denser parts of the jungle, while the barking-deer (*Cervus muntjac*) is seen but for a moment as he disappears in the thick cover.

Objects of interest such as these the admirer of nature contemplates in his solitary rambles through the valleys of this region of the Western Himalayas.

One of the first ornithological objects to be met with on ascending the grassy sides of the mountains is the graceful pipit, which I have taken the liberty of naming the Himalayan pipit (*Heterura sylvana*). It frequents verdant spots, usually at high elevations, and in appearance, as in habits, is a true pipit. This active little creature may be seen shooting upwards from the hill-side, uttering its rasping call-note "He, hoe," then downwards it darts, and is lost to view among the tall grass.

In rocky situations, and on the scarped sides of mountain-roads, the wall-creeper (*Tichodroma muraria*) is often observed. At a distance it looks like a very large gray and scarlet butterfly, as with expanded wings it noiselessly creeps over the rock, poking its long awl-shaped bill into every little nook and crevice. The cuckoo (*C. canorus*) chaunts its welcome note in bush and tree from the earliest appearance of vernality in March up to the end of May. The natives, who are familiar with its appearance, allege that it remains in the sub-Himalayan valleys throughout the year. As late as the 18th of September, I observed a pair hunting in my garden after insects. There is another species (*C. himalayanus*) closely allied to the above, which is not uncommon in the valleys. It is at once distinguished by its smaller size.

For strength of wing there are few birds with which I am acquainted equalling the Alpine swift; its congeners, the black and allied, cannot compare with it in that respect. After rain flocks are seen scouring across the great valleys, and around the mountain-tops; now dipping into the vast abysses, then rushing upwards with an elegance of swoop, they suddenly turn and dive downwards again with amazing rapidity.

The black partridge is one of the most handsome species found in Asia, where it enjoys a wide range, being plentiful in Syria, Persia, Afghanistan, Northern India, and the Himalayas. On the latter it prefers the more temperate and cultivated ranges towards the plains, to the high exposed mountains of the interior. However, neither the great heat of Bengal, nor the cold of the Himalayas, seem to affect this bird, for we find it equally common at all seasons in both climates. Black partridge shooting is a great source of amusement to the Eastern sportsman, especially on the mountain ranges, where,

from the mildness and salubrity of the climate, he can enjoy himself without danger from the sun, so frequently injurious and even fatal to sportsmen in India. A small tent (*routee*, as it is called), changes of shooting-attire, and necessaries, with as few servants as possible, are all he requires; luxuries are out of the question. To those who wish to move with rapidity and ease, it is advisable that there be nothing more than is absolutely required. A good pack of dogs is a desideratum, and far preferable to beaters both for this and pheasant-shooting, as they can be used with more advantage, especially in thick jungles and grassy mountain-sides. The dogs usually procured in the stations of the North-west Provinces of India are called spaniels, but in England I fear would be looked on as curs of "very low degree." However, when better cannot be got, they answer the purpose. Thus equipped, the sportsman who starts with a light heart, and bent on combining instruction with amusement, need seldom know a dull moment. At every step something new or curious attracts his eye. He kills his birds, and when tired sits down with a keen appetite to enjoy the produce of his day's healthy amusement—his little tent pitched on some hill-side clothed with verdure and the fair exotics of that region.

The principal food of the black partridge consists of wheat, badgeree, rice, barley, tender shoots of plants, and insects. During the heat of the day it repairs to bushy places, and in the morning and afternoon makes excursions into the fields, where it may be found associated with the gray partridge (*Perdix ponticerriana*).

In choosing a shooting-ground for black partridge, preference ought to be given to well-cultivated districts, in particular, fields surrounded with low bushy jungle. Except during



mid-day they are easily raised by beaters or dogs. The black, unlike the gray partridge, never perches on trees. On the Himalayas, during the cold months, the black resorts to the dense brushwood at the bottom of valleys. The species is not gregarious, and seldom more than a couple are seen together. Its flesh is pale and well flavoured, but neither the black partridge nor any of its Eastern congeners can compare in that respect with the British bird. The accusation of being a foul feeder, so objectionable in the case of its gray ally, may be sometimes brought against this species, but I must vindicate the red-leg or chukore (*Caccabis chukar*) from such bad habits; it is a game bird in every sense. The black partridge commences to pair about April in the Himalayas, but earlier in the plains; the young remain with their parents a long time, and are not fit for shooting until the middle or end of October. During the period of incubation the males can be heard answering each other all over the district; the call-note is harsh and composed of four distinct sounds, following each other in succession, and not unlike the words: "*Whew whá whick á-whick*," which it repeats at short intervals when perched on a stone in bushy places. I doubt if this species would stand the cold of Britain. I brought several from India, but all died during wet and cold weather off the Cape of Good Hope. The gray species is much hardier, and would doubtless thrive well in our preserves at home. Both species are known to the natives of India by the same appellatives, *Tetur* or *Tetra*.

The barking deer, called by the natives "*kakur*," is generally distributed over the lower and cultivated tracts of the Himalayas, being seldom met with at elevations exceeding from 8000 to 9000 feet above the level of the sea. The prevailing colour is a reddish-brown above, white underneath, inclining to ash on the inside of the legs of males, which have

two short canine teeth in the upper jaw, resembling those of the musk-deer, but not so long. The bark of the kakur is loud and harsh, like a fox's, and generally heard at night or at early morn. Wooded dells by the sides of streams, oak-forests and grassy hill-sides are its favourite resorts. Although several may be found in one little belt, they do not herd together. Its movements are slow and stealthy, and it is by no means shy or timorous; on that account it is easily killed, and often met with when least expected. During progression it seems to strike the fore and hind hoofs, which occasions the clattering similar to a horse "over-reaching." Among the kalij-phasant jungles of the lower ranges kakur may be looked for, and offer an occasional good snap shot to the dexterous sportsman.

One of the most common denizens of woods and jungles, flitting noiselessly among the dense foliage, and so tame as to approach within a few feet, is that beautiful warbler the yellow zosterops, known by the white downy ring round the eye, from which it has received its name (*Z. palpebrosus*); it is about the size of the blue titmouse; the general colour is olive, approaching a light yellow on the wings, forehead, and lower parts.

The gray partridge is one of the most common species found in Northern India. It is plentiful in the sub-Himalayan jungles, but does not travel any distance into the interior. As a game bird it has obtained some disrepute among European sportsmen from its foul feeding and propensity to perch in trees. It rises with a feeble wabbling flight, to which it doubtless often owes its escape by puzzling the sportman's aim. However much abused it may be, there are few, I am sure, who do "not" like to hear its loud ringing clang resounding across the plain. Poor little fellow! in this way he often betrays his hiding-place, and if not up and off on

“whirring wing,” he soon helps to fill the game-bag. The gray partridge runs with great rapidity, and unless the cover is low and scanty, is not easily flushed. Its habits are the same as the black species.

I have before alluded to the spotted hill-wagtail (*Enicurus maculatus*), one of the most handsome denizens of the mountain-stream. It is larger than the pied wagtail, and nearly 11 inches in length. The rich white and black colourings are particularly attractive, and its habits so eccentric as to arrest the attention of even the most indifferent observer—now running sprightly along the margin of the torrent, with its forked tail expanded like a beautiful black and white fan; anon with extended neck and wings it turns its well-marked body from side to side as if on a pivot, until, gathering up its snow-white legs, with an austere screech it shoots rapidly along the windings of the stream.

There is a species closely allied, but not by any means so common, and at best a rare bird on the streams of the lesser ranges. It is called the short-tailed fork-tail (*Enicurus scouleri*), about 5 inches in length, with a snow-white forehead and black upper parts, excepting a white band which crosses the back and wings. Its lower parts are also white. This active little creature delights in sporting by the sides of roaring cataracts in wooded situations, and is sometimes seen with the last.

Nowhere is a storm seen to such advantage as on the lower Himalayan ranges. There is a magnificence and grandeur about the scene perhaps in some ways peculiar to these regions. In April and May the dust-clouds generated on the plains are often carried inwards, and envelope the hill-stations of Dugshai and Kussoulee in dense and dark masses, so that objects are invisible at a few yards' distance, and the air feels

close and oppressive. Such a state of matters may last for hours, or be broken by blinks of sunshine. Again, the thunderstorms which often burst with terrific violence on the Himalayan stations come most usually from the heated plains below. It was on the 17th of April that we experienced one of the most severe hurricanes that had taken place for many years. During the first part of the day, and until 3 P.M., it continued to blow a strong breeze from the direction of the low lands, over which heavy dark masses of cloud lay piled up. These began moving towards us, and gradually swept over the intervening range, curling and seething as they rushed noiselessly down the mountain-sides into the great valleys below, and ascended the ridge on which we were located, where they were preceded by a fierce wind and illuminated by occasional flashes of lightning. At length the mass rose up and enveloped the mountain-top in a dismal gloom almost like twilight, rain falling all the time in torrents, and the thunder rolling peal after peal; whilst now and then a powerful gust of wind cleared the mountain-top for a few moments, until the brightness was again dispelled by a fresh mass of dense cloud, so that the sun shone through it with a glare like the light produced by looking through coloured glass. Suddenly the vapour-clouds passed away, and we could see them moving northwards towards the great central snow-range.

The European woodcock is met with occasionally during the winter months on the Lower Himalayas. As many as four to six couples may be occasionally procured in one day. The species is not plentiful, however, anywhere.

In the lonely glen, by the side of the mountain-torrent, where the pine grows tall and dense, and the sun's rays seldom penetrate, may be found the great snipe (*Gallinago solitaria*), from the lower to the upper ranges of the forest region.

This bird differs in other respects besides size from the common snipe ; at the same time I have procured solitary individuals of the latter on mountain-streams, in secluded alpine regions, far away from its ordinary haunts.

The spotted eagle is plentiful on the lesser ranges, and affects the vicinity of villages and European stations, where it may be seen feeding with kites and vultures, which it delights to torment when on wing.

The hooded bulbul is one of the most common denizens of jungles, and is easily recognised by its handsome top-knot and loud clanging chirp. It seems strictly Himalayan, and is seldom seen at any distance from the mountains.

Amid all the grandeur of the Himalayas, it is a most attractive sight to the naturalist to behold the vultures and rapacious birds soaring over the vast ravines and around the tops of the mighty mountains. Let him choose a summer evening, with that clear blue sky almost characteristic of the Himalayas, and just as the sun casts his last rays on the snow-clad mountains—when the quiet is only broken by the cry of the eagle, the bleat of the goat, or the shrill pipe of the black partridge—then the vultures, kites, and jackdaws may be seen wheeling in vast circles ; some are gliding along, apparently without an effort, others appear suspended motionless in the vast canopy of heaven ; while, careering in his majesty, the lammergeyer gathers up his great wings and stoops downwards, mayhap to rise again and join the medley he has just left, or stretching forth his pinions to their fullest extent, he sails along the mountain-brow to the projecting cliff on which his eyrie stands safe, for *there* who dare assail him ?

On the Crol mountain, near Dugshai, on an inaccessible rock, I once saw a nest containing two young lammergeyers ;

bones of sheep and cattle were strewn among the cliffs hundreds of feet below ; they were found to be the remains of food carried by the parent-birds from the slaughter-houses of Dugshai or the neighbouring European stations.

It has long been a vexed question how vultures discover their food. Though divers authorities have pronounced opinions in favour of *sight*, some again contend that *scant* is the means employed, while a third considers both senses are concerned.

Mr. Darwin says—"Often, when lying down to rest on the open plains, on looking upwards I have seen carrion-hawks sailing through the air at great heights. Where the country is level, I do not believe a space of the heavens of more than  $15^{\circ}$  above the horizon, is commonly viewed with any attention by a person either walking or on horseback. If such be the case, and the vulture is on the wing, at a height of between 3000 and 4000 feet, before it could come within the range of vision, its distance in a straight line from the beholder's eye would be rather more than two British miles. Might it not thus readily be overlooked? When an animal is killed by the sportsman in a lonely valley, may he not all the while be watched from above by the sharp-sighted bird, and will not the *manner of its descent* proclaim throughout the district, to the whole family of carrion-feeders, that their prey is at hand?"\*

In illustration of what has just been quoted, I may adduce the following as of familiar occurrence :—After a bear or other large animal is killed, the hunter soon finds himself surrounded by rapacious birds, where none were seen before ; they are observed dashing down the glens, and sailing in

\* "Narrative of the Surveying Voyages of His Majesty's ships 'Adventure' and 'Beagle,' " vol. iii. (Darwin) p. 223.

circles around his quarry. Some sweep within a few yards of him, others are soaring at higher elevations, and even at such vast altitudes that the huge bearded vulture appears only as a small speck in the blue sky, but gradually it becomes more distinct as its wide gyrations increase. It may gather itself up and close its wings, or dash in one fell swoop hundreds of feet, and the next minute is seen perched on the jutting rock beside him. Such, then, are the usual appearances observed soon after the death of a large animal, and the hunter wonders whence all these great vultures and carrion-crows have come ; but if, immediately after his noble ibex has rolled down the crag, he directs his eyes heavenward, he will observe carrion-crows or vultures, at various distances and elevations, sailing leisurely about, whilst the one nearest to him, observing the death of his quarry, instantly commences to descend ; then one follows the other until the valley resounds with the hoarse croakings of the crows, and the air seems alive with them. It is surprising the numbers that are sometimes observed to congregate on these occasions ; I have seen no less than sixty vultures and crows on and around the carcase of a newly-killed bear.

This subject is beautifully described by Longfellow in his "Song of Hiawatha,"—

" Never stoops the soaring vulture  
On his quarry in the desert,  
On the sick or wounded bison,  
But another vulture watching,  
From his high aëriel look-out,  
Sees the downward plunge and follows ;  
And a third pursues the second,  
Coming from the invisible ether,  
First a speck, and then a vulture,  
'Till the air is dark with pinions."

Every one at all conversant with the habits of Asiatic vultures must agree with me, that they discover a carcass as quickly when fresh as when putrid ; it would be preposterous therefore to aver that *scent alone* guides these animals from such vast altitudes to their prey ; moreover, I believe that in the former case scent has little to do in the matter, and even when putridity exists, I question whether the bird does not discover the presence of the substance *by sight*, long before it could possibly be within the influence of smell : one has only to consider the distance, currents of air, etc., intervening between the bird and its prey, to see at once the impracticability of scent being the only agent employed.\*

The lammergeyer or bearded-vulture (*Gypaëtus barbatus*) is, without doubt, the "Roc" of *Arabian Nights*, and the "Nisser" mentioned by Bruce in his *Travels in Abyssinia*. Heber, in his *Indian Journal*, speaks of a large vulture as the "condor of the mountains," but evidently he had never examined one, as he describes it having a bald head and neck.† Specimens from the Alps, Africa, and the Himalayas, do not differ in any well-marked degree. It appears to me that the mistakes have arisen in the usual manner—by taking immature birds as types of the species, and in not making allowances for effects of climate, etc. In the *Journal of the Asiatic Society of Bengal*, vol. iii., Hutton describes a collar on the Himalaya bird as characteristic ; but I agree with Mr. Hodgson this cannot be accepted as a specific distinction, being by no means regular. Again, in many Himalayan specimens the *hinder part of the tarsus is bare at the joint*, although not all the way down as in the Abyssinian indi-

\* See the discussions of Audubon and Waterton.

† May he not be describing one of the large bald Indian birds ?



viduals described by Rüppell,—“tarsis parte inferiore et interna plumis devestita.” The plumes are particularly obvious in the Eastern bird, and project much backwards when it is feeding. These minor discrepancies are perhaps owing to climatic peculiarities, or the countries they frequent. The size and weight of this species vary considerably: Bruce mentions having killed one 22 lbs. in weight; but the heaviest out of many adults shot by me on the Himalayas did not exceed 14 lbs., the average being 12 lbs. Bishop Heber says, “One shot by Lieutenant Fisher near the Himalayas measured 13 feet between its extended wings.” I have notes of many killed at different seasons of the year, none of which approached such dimensions—for instance the following:—“An adult female killed near Dugshai was 8 feet 2 inches between the tips of the wings, and from bill to extremity of tail 3 feet 8 inches; stomach contained a mass of bullock’s hair, with large bones of sheep and oxen. An adult male, shot in the same ranges with the last, measured 9 feet between the tips of wings, and 3 feet 9 inches in length. A fine adult female had the greatest possible expansion of wings, 9 feet 2 inches; length, 3 feet 11 inches; weight, 14 lbs.; stomach contained the hoof of an old ibex half-digested.”

The lammergeyer is easily distinguished from the other vultures by its pointed wings and wedge-shaped tail. The young bird differs considerably from the adult, whose plumage it does not fully attain until the third year. At first the head, neck, and lower parts are black; with a tinge of ash on the back and belly; the eye is black, while the old bird has the above parts an ochreous white, globe of the eye deep red with a white iris and black pupil, which add considerably to the boldness and majesty of his appearance. The eye is

smaller than might be expected in such a large bird. In point of strength of wing he has few rivals. The bearded-vulture is usually observed sailing leisurely along the mountain-side, now and then flapping his great wings when he wishes to mount higher, as the American poet so beautifully describes, "by invisible stairs ascending and scaling the heavens;" but let the govind-kite or Indian jackdaw annoy him, then, with a rushing noise like that of a fierce wind, he stoops with a grace truly grand and beautiful. Oft when clambering along a rocky precipice, picking every footstep with studious care, and daring not to lift my eyes for fear of making a false step, have my ears been assailed by the furious rush of the lammergeyer, and a feeling that if he only touched me with his pinions I would have rolled into the yawning abyss below. Although often seen feeding on carrion and putrid animals, especially near European stations, in the solitude of his native mountains he hunts with great intrepidity. Natives have told me that the young of bears, ibex, wild and tame sheep and goats, are often carried away by the bearded-vulture; but I have not seen an animal larger than a marmot in its talons. A red or cinnamon-coloured powder is plentifully distributed among the feathers of the neck and breast of young and adult individuals, and would seem to be composed of soil containing iron, which they obtain from dusting themselves like other birds—a habit much indulged in by the denizens of rocky, bare mountains, from the bear and the ibex down to the mountain-finch.

The Indian vulture (*Gyps indicus*) is gregarious, so far that they generally roost in societies, but hunt singly; its long bill, coupled with the pale cinereous-brown plumage, distinguish it from the Bengal vulture (*G. bengalensis*), which

has a white back. The Pondicherry vulture (*Octogyps calvus*) is again at once recognised by its red head and legs, and general smaller dimensions. The largest of the bare-headed species is the great tawny vulture (*Gyps fulvus*), which attains sometimes a weight of 20 lbs. All these species are by no means uncommon on the Western Himalayas.

## CHAPTER V.

Excursion to the Chor Mountain—Scenery—Geology—River Gerrie—Fish—Pea-fowl—Jungle-fowl—Bush-quail—Hares—Magpies—Jay—Leeches—*Rhododendron* in flower—Bees—Habits and Haunts of the Monal, Cheer, Plach, and Kalij Pheasants—Red-legged Partridge—Spring flowers—Musk Deer—White-cheeked Weasel—Pine Marten—Skylark—Birds—Red Fox—Hyena and Leopards—A Himalayan Trapper—Red Honey-sucker—Parrakeets of the region—Wounded Vulture.

ON the 7th of March 1851 I started with Young and Bowden on a long-meditated excursion to the Chor mountain and more interior Himalayan ranges. We formed a small exploring-party, equipped with every requisite for securing good sport, to which I added my auxiliaries for preparing and preserving collections.

There is something in the life of the Himalayan sportsman peculiarly captivating. Unrestrained freedom is his ; he obeys no man's mandates ; and his thoughts and actions receive no guidance save the dictates of his own mind.

It was a fine crisp morning when we started ; the cock was crowing on his roost ; and long before the inhabitants of our home were stirring, the last man of our thirty followers might have been seen, toiling along the rough path leading to the little village of Narg, situated some ten or twelve miles eastward of Dugshai. The general appearance of the scenery differed only in a slight degree from what has been already described. The bare parts of the mountains were

now covered with the rich green carpet of spring, whilst their hollows and sheltered parts were clad with a profusion of tree and bush, which skirted the sides and bottoms of the ravines. High up appeared the long-leaved pine, a little farther down the Himalayan oak ; apricot and peach were again succeeded by the pomegranate and barberry, etc., in the warmer regions below.

The cooling breeze of the mountain-top formed an agreeable contrast to the close and feverish atmosphere of the ravines. In our scramble over hill and dale, we had not time to examine the geological formation. Abundance of argillaceous and mica schists appeared in rough crumbling masses in the ridges and valleys, especially around the village of Narg, where they were encrusted with a white substance afterwards discovered to be impure carbonate of soda. The long-bearded wheat was in ear, while tall walnut-trees almost hid the native dwellings, over which the convolvulus, cucumber, and melon, were twining their tendrils. We found the inhabitants, as usual, very civil and obliging—a character for which the Paharees are celebrated. In manner simple, they are frugal, honest, industrious, and enduring. They love their native hills, and seldom care to visit India, or mingle with the northern tribes. They assimilate to the Rajpoots in their religion. Although in former days they displayed warlike propensities, when urged on by their chiefs, the influence of British rule has moulded them to more peaceful pursuits, which our steadfast ally, the late rajah of Puteala, greatly tended to maintain. The soil of the mountains is exceedingly productive, and requires little culture.

On the following morning we were up at daybreak, and after the tent and baggage had been packed on the backs of coolies, each took his gun, and away we went, beating the

jungle *en route*. Soon the clear piping call of the kalij pheasant was heard among the dense wood, as one after another rose before our dogs; while, now and then, a black partridge dashed past us. Vigors's and the red-billed jays sent forth their harsh calls, in concert with the ringing clang of the crested bulbul, the rough chirp of the red-backed shrike, or the wild scream of the rose-coloured parakeet.

Between the reports of our guns and the barking of the dogs, we had upset the interior economy of the jungle, for every bird in the district and hill-side seemed roused and alarmed. They had evidently not been accustomed to such rude and noisy molestations.

The hamlet of Philora is situate on the banks of the river Gerrie. Here we encamped, and viewed the mighty mountain-stream, now flooded by the melting snow of the higher ranges, roaring and surging some hundreds of feet below us, its banks either clad with profusion of trees and shrubs, or stretching gently up into cultivated terraces, where here and there might be seen a solitary gable-roofed hamlet, with the never-failing tree to shade its inmates from the heat of mid-day.

After a savoury repast on pheasants and partridges, we descended towards the river, for the purpose of exploring the neighbourhood. Great was our chagrin on observing a musk-deer, perched on a projecting cliff some forty feet above us. The little creature stood and gazed at us with apparent unconcern, when a rustle was heard close by, and a native, crawling out of the bush, knelt, and taking a steady aim with his long matchlock, sent a bullet against the rock, about an inch above the animal's back.

The formations in the neighbourhood were composed chiefly of mica-slate, while, along the course of the river,

several veins of gneiss appeared, and masses of limestone, in the shape of boulders, strewed its course.

The following day we crossed the swollen river, which delayed the passage of our baggage for several hours. It was a strange sight to witness our copper-coloured followers toiling across the rapids, with our goods and chattels on their heads, some immersed even to the arm-pits; but they braved it manfully. An hour's march brought us to the little village of Thor, situated on a gentle incline some 200 feet above the level of the river, and surrounded by small fields raised one above the other.

We pitched our tent under the spreading boughs of a banyan-tree, and breakfasted on fish, which the natives catch in the river by means of nets. All were evidently a species of mullet, and several weighed about  $1\frac{1}{2}$  lbs. each. Besides the masseer, we were told that three other different kinds of fish are plentiful in the river, and there are doubtless many more.

In the jungle along the banks we found abundance of pea-fowl, and I observed two white-cheeked weasels\*—one with a black partridge in its mouth. I managed to bag a brace of jungle-fowl (*Gallus bankiva*). These birds, in habits and general appearance, bear a close resemblance to varieties of the domestic bird, especially the hen and young. The jungle-fowl flies with great rapidity; it is generally met with in small flocks, in dense covers by the side of fields or ravines. Its cackle is like that of the tame bird, from which it does not seem to differ in any material degree. Probably many of the former wander from the villages, and take to the wild life of their congeners.

We were up at daybreak on the 10th. My friends enjoyed themselves among the kalij pheasants and jungle

\* Known likewise as the yellow-throated marten (*M. flavigula*).

fowl, while I sought wilder tracts, in quest of rarer game. Now and then, among the prickly shrubs by the margins of the fields, a covey of ten or twenty bush-quail (*Perdicula asiatica*) sprang up with a whirring noise ; a black partridge or a kalij pheasant would shoot across the valley. A Himalayan hare (*Lepus macrotus*) was killed. This species is larger than the black-necked hare (*L. nigricollis*) of the Indian plains. It is confined to the lesser ranges and sub-Himalayan valleys, and though generally distributed does not seem to be abundant anywhere. Its flesh is more savoury than that of the other species, but in this respect neither can compare with the hare of Europe. The mountain-hare is distinguished from the other by its longer ears, more slender legs, and small feet. The under surface of the tail is rufous.

In wooded situations, all over this district of the western ranges, the traveller is struck with the characteristic and elegant long-tailed jay (*Calocitta sinensis*, Linn.) This graceful creature attracts attention not only by the brilliancy of its plumage, but the loud, harsh screams it utters as the traveller approaches—now jerking up its long tail, after the manner of the magpie, now garrulously chattering, as though reproaching him for intruding on its haunts. The moping owl, the chetah, or its more dangerous enemy the tiger-cat, it seldom passes without uttering a volley of abuse. It is usually seen singly, or at most in pairs. The body is about a foot in length, the tail nearly 18 inches, bill and legs bright red ; forehead, cheeks, side of neck, throat and breast, black ; back part of neck white ; back, wings, and tail, sky-blue, deepening towards the rump ; tail composed of twelve feathers, graduating in pairs. The ends of the two longest have their edges turned inwards. Coleopterous insects constitute its favourite food ; but I have often seen it eating a species of



wild apple (the *Feronia elephas*, *tum*), abundant in the lesser ranges. This fruit often rots on the trees, and when in that condition affords the means of subsistence to many other birds, especially the crested bulbul, and the various sorts of parakeets. On the southern ranges of Cashmere there is a species of jay very closely allied to the above. It will be noticed hereafter.

Besides the wandering pie (*Dendrocitta rufa*), its ally the red-vented pie (*D. sinensis*) affects the same situations, and although not so domestic in habits, and less often met with in the neighbourhood of dwellings, is plentiful in copses and jungles. In habits it is similar to its congener, and feeds likewise on insects and fruit.

Although the common European jay has been shot on the mountains of Afghanistan, I have never heard of it being met with on the Western Himalayas. It is evidently replaced there by a common species, called the black-throated jay (*Garrulus lanceolatus*, Vig.)

I killed on the river a large black-headed kingfisher, which was unfortunately carried away by the current before I could note further particulars than that it was of large size, a general ash colour, with a black hood.\*

On the 11th of March, after a long day's journey, we gained a high ridge, overlooking a beautiful valley teeming with rich fields of spring wheat and barley. The hum of bees among the flowers of the mulberry and apricot, in the quiet stillness of a delightful evening, added to the cooling sensations of a bathe in the neighbouring brook, and a sumptuous repast, formed of the partridges and pheasants, made us feel a rare degree of contentment and repose, for we had rambled all day over the grassy hill-sides, pursuing the black partridges

\* Probably the large black and white kingfisher (*Ceryle guttata*).

wherever their luckless call attracted us, until, tired and hungry, we returned to the tent.

The houses in this part of the country are generally gable-roofed ; and there are numbers of little towers, which, we were told, were once on a time places of defence, when the tribes quarrelled about the appropriation of the mountain-streams for the purpose of irrigation. A six-pounder would have levelled them with the ground, yet a native informed us that these diminutive fortresses had withstood many a bloody siege. We passed a Paharee marriage-party, about 200 men and women, dressed in the gayest and brightest attire—red turbans, and every variety of colour in the rest of their toilette. The bridegroom was not visible, but the bride, a girl of about ten years of age, was seated in a box, carried on the shoulders of four men. A marriage among the hill-men is always a very grand event, and costs many years' savings.

Our dogs becoming suddenly ineffective from some derangement of their breathing, I examined their nostrils, and found them filled with large distended leeches (*Hæmopsis paludum*). These abound in the pools and damp grass.

On the following morning, as we toiled up the steep ascent above our previous night's encampment, it was a beautiful sight to behold the hill-sides covered with a scarlet rhododendron (*R. barbatum*) in full blossom ; and when we gained the ridge a still grander scene burst upon our view. The lights and shadows thrown across the great valleys, while northward the Chor mountain, monarch of all around, stood out in impressive grandeur, its gloomy sides diversified by pine-forests, and towards the summit with patches of snow. We gained, at noon, the village of Naira, and pitched our tent close by. The natives of this district seemed to be paler

and handsomer than the hill-men around Dugshai. Many of the young women were fair and beautiful. Here we observed beehives in the walls of the houses, and were informed that when their owners wished to take the honey they did so by beating drums behind the hives, until the bees were fairly frightened away, when the outer apertures were closed. This method was practically illustrated to us by a villager beating on a tom-tom with a violence sufficient to have terrified a much less sentient animal than the bee.

Next day we mounted a ridge leading towards the Chor mountain through forests of oak, deodar, and pine. On the way were observed several monal pheasants (*Lophophorus impeyanus*), but beyond a transient glimpse of them as they flashed down the vast ravines, amid a blaze of dazzling reflections from their gorgeous plumage, we were unable to get within even rifle distance of them.

Several red-legged partridges (*Caccabis chukar*) were killed on the bare rocky places. In little sheltered nooks I gathered two sorts of primroses, which I subsequently discovered to be the *Primula purpurea* and *obtusifolia* of Royle. The British bracken was plentiful. We were much struck with the magnificence of the forest-trees, which attain vast size at these altitudes.

The height of the Chor is 10,688 feet above the level of the sea, and is composed chiefly of mica-schist and clay-slate, with intrusive dykes or veins of granite. Boulders of the same rock were abundant on the valleys. The summit of the mountain is composed entirely of granite. Gneiss was also often met with on the ridges. Both are, however, large-grained and coarse, the quartz predominating. Sometimes great veins of quartz are observed, containing nodules and crystals of hornblende, especially in the ridge above the village of Churass,

where we pitched the tent and commenced our labours. Daily, at cock-crow, each started on his own beat, and returned in the afternoon bringing with him the spoils of the day.

The most interesting denizens of these wilds are the various species of pheasants. Foremost of all stands the impeyan, or monal. This splendid bird, once so abundant in the Western Himalayas, is now, comparatively speaking, restricted to certain localities in the wooded slopes of the higher ranges. Whole tracts of forests, once dazzling with the gorgeous forms of these birds, are now without a single specimen; however, it will be long before it is extirpated, for its haunts are high up among the craggy rocks where few ordinary sportsmen venture. No words can convey an accurate idea of the brilliancy of this bird's plumage,\* and that of several of its congeners—indeed, many of the best-executed drawings fall short on this point. However, those in Mr. Gould's *Birds of Asia*, and his *Century* may be allowed the first rank.

The average weight of an adult male monal is nearly 6 lbs.;† that of the female about 5 lbs.; the young of the first year about 3 lbs. The favourite haunts of this species are in the deepest solitude of the forest, or among the bamboo and dense jungle which clothe the sides and bottoms of the valleys.

It is found along the line of the Himalayas, from 6000 to 8000 or 10,000 feet, but is partial to localities.

The monal is strictly alpine in its haunts, and prefers the

\* Hundreds are sold at Stevens' sale-rooms. They are bought chiefly to adorn ladies' bonnets!

† Jerdon, in his admirable work on the birds of India, published in 1864, gives the weight  $4\frac{1}{2}$  lbs. Surely, unless his data were obtained at a different season of the year, there must be some mistake, as our conclusions were drawn from many adult males weighed on the spot.

cooler regions of the middle ranges to the forests bordering on the plains of India.

Its favourite food consists of acorns, earth-nuts, bulbs, wild strawberry, currants, etc. They may be met with in scattered flocks, singly, or in pairs.

The breeding-season commences about April, when the wailing cry of the males resounds through the mountain, and might be mistaken for that of any of the larger falcons. The female monal lays four to six eggs, very similar in colouring to those of the turkey. The young bird has the dark brown plumage of the female until the autumnal moult. It has certain names in different localities—for instance, about Mussoorie and Simla it is known by the name *Monal*; to the eastward it is called *Ratteah Cowan*, and *Monalce*. The male is the *Lont* and the female the *Ham* of the Cashmerians, who adorn their mosques with the brilliant feathers of the male.

The plach pheasant, known by the local names Pukras, Coclass (*Pucrasia macrolopha*), is less plentiful, and does not appear so generally distributed as the monal.

There are, besides, two or three other species very closely allied, but the above is the most common. Its distribution does not yet seem clearly defined, but from all accounts it is most abundant in the western ranges, and rare towards the eastward. In Nepal it is probably replaced by another species, and again, in the woods and forests of Cashmere, I have frequently observed (though never shot) a species which may turn out to be new.

The male plach is 24 inches in length; the head is glossy-green, except the crown feathers, which are ash-brown. They are long and tapering on the side of the neck, where there is a large white spot. The breast, middle of the belly, and tail are dark chestnut, the latter tipped with white; the rest of

the body light ash, with a streak of black down the middle of each feather. The tail is pointed, and dark chestnut, verging into black towards the tips, which are slightly edged with dirty white.

The tail-coverts are long and tapering and ash-coloured. The female is less in size, and her plumage is not so gaudy, but is still beautifully variegated with brown, chestnut, and yellow. The call of the plach is composed of a few cackles, or low chattering sounds, which are emitted when on wing.

In the early morning, and at dusk, the harsh crow of the cock is heard among the dense boughs of the pine and deodar, where it frequently secretes itself after being flushed. It is generally met with in pairs or solitary. These birds fly with great rapidity, and although partial to the more alpine regions, I have met with individuals on the pine-clad tops of the ranges in the neighbourhood of Dugshai.

During one of our morning rambles through a wood of stunted oak, I was startled by a covey of light-brown pheasants, which, on our approach, rose, uttered a series of plaintive calls, and dispersed themselves in the dense cover. We searched in vain for them for upwards of an hour. At length I discovered one on a branch within a few yards of me, and Young killed another close by. The specimens proved to be a male and female of the cheer-pheasant (*Phasianus wallichii*), one of the most elegant species to be met with in the Himalayas. It is likewise known by the local names of *Booinchil* and *Herrel*. The male measures about 18 inches, exclusive of the tail, which varies from 20 to 26 inches in length. The naked skin around the eye is bright red. The iris is light brown. The tail is composed of eighteen feathers, which graduate in pairs, and are broadly barred with pale yellow, or dusky brown and olive blotches.

The female is smaller, and has not the magnificent tail of the male—which he displays to most advantage when walking or on wing.

The cheer frequents the lower and middle regions, and is seldom found at very high elevations. It delights in grassy situations, among stunted oak, or such-like, and is generally met with in flocks of from six to twenty. The moment they are disturbed they separate and secrete themselves among the grass, or in the foliage of trees, whence I believe they have been knocked down with sticks.

The female forms her nest of grass in low brushwood, and lays from nine to fourteen eggs of a dull white.

The young are hatched about the beginning or middle of June.

The flight of the cheer is heavy, and not strong, and it seldom perches on trees, unless when disturbed.

Cheer-shooting, like all other sport in the Himalayas, is followed out with most success in autumn. The cheer seems hitherto to have been found only in the north-western Himalayas; possibly its cunning and stealthy habits may cause it to be overlooked in many situations.

The kalij (*Euplocomus albocristatus*) is the most common and widely distributed of the Himalayan pheasants. There is a congener, with white markings on the crest and back, found on the eastern ranges, Sikkim, etc. Mr. Blyth considers it a distinct species, and has named it *E. melanotus*. I am not prepared to dispute the decision of so good an authority. I must, however, remark that I have seen many old males of the *E. albocristatus* with very little white on the crown and back. The kalij pheasant ("*Merghee kookera*" of the natives) is plentiful along the great valleys, called *Dhoons*, bordering on the plains of India, up to elevations of from

## JETPUR



common ancestor, Nāja Desa; and the four most important States are shown below. Nāja Desa's two sons, Viro and Jeto, founded the Virāni and Jethāni subdivisions of Jetpur; and Viro had two sons who in their turn subdivided the Virāni estate into two parts, Oghad Virāni and Kānthad Virāni. The Jethāni estate was similarly again subdivided into Vikamshi Jethāni and Bhoko Jethāni. The four principal States now exercising third and fourth-class jurisdiction are :—

State.	Class.	Subdivision.
Jetpur (Devli) . . . .	3rd class .	Bhoko Jethāni.
Jetpur (Vadia) . . . .	" .	Kānthad Virāni.
Jetpur (Mulu Surag) . . . .	4th class .	Vikamshi Jethāni.
Jetpur (Nāja Kāla) . . . .	" .	Oghad Virāni.

Two different accounts are given of the acquisition of Jetpur : namely, that of the *Tārīkh-i-Sorath*, which says that the first Nawāb of Junāgarh, Bahādur Khān I, granted Jetpur to Vala Vira : and a tradition which says that Viro Nāja of Chital aided the Valas of Bagasra in their feud with Vaijo Khasia of Mitiala, and that Vala Sāmānt of Bagasra was slain in the battle. In consideration of Viro's aid the Valas of Bagasra gave him Jetpur. These Bagasra Valas acquired their share in Jetpur from the Khadia Baloch, who received it from the local Muhammadan governors of former times. Subsequently Jetpur was conquered from Champrāj, the great-grandson of Jetha Nāja, by Shams Khān, a Musalmān *sardār*. The *tāluka* remained in an unsettled state for a long time, but in course of time Champrāj's descendant restored it to its former position.

**Jetpur (Vadia).**—State in the Kāthiāwār Political Agency, Bombay situated in about  $21^{\circ} 40' N.$  and  $71^{\circ} 53' E.$ , with an area of 72 square miles. The population in 1901 was 10,330, residing in 17 villages. The revenue in 1903-4 was Rs. 1,30,000, and the cultivated area 43 square miles. The State ranks as a third-class State in Kāthiāwār. For history see JETPUR (DEVLI).

**Jetpur (Mulu Surag).**—State in the Kāthiāwār Political Agency, Bombay, lying between  $21^{\circ} 36'$  and  $21^{\circ} 49' N.$  and  $70^{\circ} 36'$  and  $70^{\circ} 50' E.$ , with an area of 25 square miles. The population in 1901 was 6,728, residing in 16 villages. The revenue in 1903-4 was Rs. 60,000, and the cultivated area 20 square miles. The State ranks as a fourth-class State in Kāthiāwār. For history see JETPUR (DEVLI).

**Jetpur (Nāja Kāla or Bilkha).**—State in the Kāthiāwār Political Agency, Bombay, lying between  $21^{\circ}$  and  $21^{\circ} 23' N.$  and  $70^{\circ} 35'$  and  $70^{\circ} 57' E.$ , with an area of 72 square miles. The population in 1901 was 10,366, residing in 24 villages. The revenue in 1903-4 was

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made," inasmuch as authors have formed the diagnosis entirely from the size of the band on the neck and the intensity of the white on the throat. I have examined various Turkish specimens, and found even these peculiarities not constant. These races form one species, extending from South-east Europe and Syria, across Central Asia and the northern boundaries of Hindostan, where it is not very plentiful, the most advanced of its posts being the low ranges of the Punjab. The species seems to abound in Chinese Tartary and the sources of the Oxus. Lieutenant Wood, in his journey\* to the latter country, mentions taking part in a hunting expedition, when the party bagged 500 chukore by running them down with beaters and dogs.

The chukore prefers barren mountains to the rich and luxuriant vegetation of the more southern ranges; bare stony ridges clad with low scrub are its favourite haunts. It is usually met with in coveys. Although the breeding season commences early, and the young are hatched in July, and rapidly attain the size of the parents, they are seldom able to fly before the middle of September. The nest is composed of dried grass, and is placed in bushy places; the eggs are white, and vary in number from nine to twelve. During incubation the male remains near the nest, and may be heard all day piping his loud call—"cuc cuc," resembling that of the domestic fowl. The Cashmerians call the bird "kau-kau" on account of its call. Although not actually a denizen of the valley, it is not uncommon on the surrounding mountains. The chukore is a handsome bird, and to the sportsman affords better diversion than perhaps any of the Himalayan partridges. Its rapid flight, and the trying nature of the situations frequented by it, demand the hunter's best energies. On the

\* *Voyage up the Indus to the Source of the Oxus, by Kabul and Badakshan.*

Indian frontier their numbers are never so great as to recompense one who expects good shooting at little bodily exertion ; but the sportsman prepared for a rough scramble over rock and fell cannot betake himself to a better and more stirring amusement than shooting chukore on the lower Himalayan ranges.

On the 17th of March the snow still lay thick and hard in the sheltered parts of the Chor mountains, especially among the oak and pine forests ; while in the more open glades, among the stunted bamboo jungles, we had to flounder knee-deep through beds of rotten melting snow, around the margin of which peeped up the beautiful pink and purple primroses—the advanced guards of spring ; and no great distance down the mountain the apricot and apple-trees were in full bloom. The difference in the temperature of the two regions was well marked—above, an arctic winter was but just ending ; below, spring had fairly set in. We observed among the snow foot-trail of bears and large deer—either the Cashmere or Duvaucell's deer (*Cervus cashmerensis* or *duvaucellii*) ; and the sharp-pointed and characteristic footprints of the musk-deer (*Moschus moschiferus*) were plentiful. I wounded one, but the little creature escaped and hid itself in the impervious bamboo jungle. The custouree, as it is called, frequents the lower and forest ranges, as high as the stunted birch on the limits of arboreal vegetation, and confines of snow, from 10,000 to 12,000 feet above the sea-level. There it often remains until driven down by the approaching winter, for beneath the naked boughs and pale trunks of the birch it delights to dwell, nibbling a scanty fare from the moss-clad bank, or along the sward still damp with snow-water. Seldom is its solitude disturbed, for to these situations the leopard rarely ascends ; and save the startling call of the cuckoo, there is nought to disquiet it in this bare inhospitable region.

In the forest it is easily traced by the heaps of dung on its runs, for it is partial to localities, and both in habits and general appearance has a great affinity to the hare. Sometimes I have found it by following up its trail through the copse across the grassy glade into a little dell, where the indifferent custouree might have been seen feeding within a few yards. In districts where it is not often hunted it is by no means timid, and will seldom run away at the report of a gun. On that account it forms an easy prey to the chetah and other leopards. The lammergeyer destroys the young, but seldom if ever attacks the adult. The mode of its progression is remarkable, and comprises a series of spasmodic leaps, while now and then it stops to reconnoitre, or, walking a few feet, resumes these fantastic movements. In thick cover it secretes itself like a hare. Although killed in numbers for its much-coveted scent, the musk-deer is by no means uncommon. The musk is most sought after during the rutting season in autumn. I have repeatedly examined the contents of bags at other seasons, but, except a rank offensive odour from the dark pigmentary substance contained in them, I could not discover a trace of musk. It is said that unless the musk-bag is removed before the body cools the scent evaporates. The market-value of each bag is from £1 to £1 : 10s. There is considerable diversity in the colour of the musk-deer. So much is this the case, that a casual observer, seeing only skins, would be apt to conclude that there is more than one species ; but after closely observing these variations, I have been led to the conclusion that they are attributable to age or season, and the nature of the localities. Indeed, two skins are seldom found exactly alike. Individuals partial to dense forests and jungle have the upper parts dark, with black splashes on the back and hips, and the

western districts of Mālwā. After suppressing these gangs, Kesho Dās obtained possession of their lands. In 1607 he was invested with the insignia of nobility by the emperor, but died the same year, poisoned by his son and heir. From this time onwards the State was subjected to much internal disturbance, the confusion being greatly increased by the appearance of the Marāthās in 1722; and the next year the State was formally placed under the management of Holkar during the minority of the chief. In 1817 the revenues were merely nominal, owing principally to Marāthā oppression, though, singularly enough, Holkar left the collection and payment of the *chauth* or fourth part of the revenue which was his due to the Jhābua officials. During the settlement of Mālwā by Sir John Malcolm the State was guaranteed to the family. Rājā Gopāl Singh (1840-94), though only seventeen years of age at the time of the Mutiny, rendered good service in assisting the fugitives from Bhopāwar, in recognition of which he was presented with a *khilat* of Rs. 12,500 in value. In 1865, however, he permitted a prisoner confined under suspicion of theft to be mutilated, for which a fine of Rs. 10,000 was imposed and his salute discontinued for one year. Till 1870 the States of Indore and Jhābua exercised joint jurisdiction over the Thāndla and Petlāwad districts; but as this arrangement led to constant disputes, an exchange of territory was effected in 1871, by which Petlāwad was assigned to Indore, Thāndla remaining with Jhābua, which pays Rs. 4,350 a year to Indore in adjustment of revenue. The present chief, Udai Singh, succeeded by adoption in 1894, and has exercised administrative powers since 1898. The ruler bears the title of His Highness and Rājā, and receives a salute of 11 guns.

Population has varied at the last three enumerations : (1881) 92,938, (1891) 119,787, and (1901) 80,889. The large decrease during the last decade is accounted for by the severe losses incurred by the Bhil population in the famine of 1899-1900. The density is 60 persons per square mile. Animists, chiefly Bhils, number 58,428, or 72 per cent. of the total population, and Hindus 18,156, or 22 per cent. The Roman Catholic mission has a station at Thāndla, and native Christians numbered 73 in 1901. The chief tribes and castes are Bhils, 29,200, who form 36 per cent. of the population; Bhilālas, 14,500, or 18 per cent.; Patliās, 8,700, or 10 per cent.; and Rājputs, 2,000, or 3 per cent. Agriculture supports 61 per cent. and general labour 8 per cent. The State contains 686 villages and 158 *bhūlpāras* (hamlets).

Land is divided locally into two sections: the Mahīdhāwa or land along the Mahī river, which is cultivable; and the Ghāta or hilly tract, of which the greater part of the State is composed, and which is of low fertility and incapable of irrigation. Of the total area, only 120 square miles, or 9 per cent., are under cultivation, and 4 square miles, or

above weasel is plentiful on the lesser ranges, and may be often seen hunting around the villages in quest of poultry, partridges, etc., or their eggs, on which it chiefly subsists. A tamed specimen in my possession followed me like a dog, and delighted in the name of "Kecky." It was in the habit of constantly uttering a low chuckle, which was prolonged into a harsh scream when the little creature was irritated. In habits it is exceedingly playful, and always detests confinement in a cage. It usually took up its quarters on my bed ; and occasionally, in the morning and evening, made excursions into the hedges and thickets in quest of rats, mice, lizards, and snakes, which it despatched with the utmost rapidity, seizing them by the neck. An egg was always considered a great delicacy, and Kecky would run up a wall or leap several feet from the ground to obtain his prize. It nibbled a little hole at one end, and sucked the interior therefrom. When dropping from a height the feet were expanded like the Felinae ; and it delighted in prowling, like them, after its prey, spending hours in attempts to capture jack-daws and sparrows on the Persian lilac-trees, none of which it ever succeeded in catching. On the ground it progressed by a succession of leaps, by which means it captured its prey. The yellow-throated marten is subject to seasonal changes in the colour of its fur. During winter this marten is more hoary on the upper parts ; whereas in midsummer the head, neck, and back are jet black, and the throat, breast, and lower parts yellowish-white. The pine marten (*M. martes*) does not apparently affect the Western Himalayas, but its skins are brought to India from Afghanistan.

My specimens of the song-lark (*Alauda triborhyncha*, Hodg.) of the lower region did not scarcely differ from the skylark of Europe. One distinction would appear to be, with refer-

The chief heads of expenditure are Rs. 60,000 on general administration, Rs. 20,000 on the chief's establishment, Rs. 15,000 on collecting the land revenue, and Rs. 3,000 on medical.

The incidence of the land revenue demand is Rs. 1-1-0 per acre of cultivated land and 3 annas per acre on the total area. As in all Rājput States, much of the land has been alienated in *jūgīr* grants to members of the chief's family and others. These alienated territories comprise 56 per cent. of the total cultivated area, but pay only 3 per cent. of the total revenue. All rents are taken in cash, and since 1902 have been paid direct to the *tahsildār*. Ordinary rates vary from Rs. 3-3-2 to Rs. 9 per acre. A higher rate, amounting sometimes to Rs. 24 an acre, is paid for irrigable land growing poppy and sugarcane. In the hilly tract, the rates vary from a few annas to R. 1.

Opium is weighed at Jhābua, Thāndla, and Hanumāngarh before passing out of the State, and a duty of Rs. 5 is levied per chest of 40 lb.; when the poppy comes from the land of an *Umrao* Rs. 2 to Rs. 3 are taken by the State, the balance being received by the *Umrao*.

Copper coins were struck in Jhābua up to 1881, but discontinued after that date. The British rupee was made legal tender in 1893.

No regular troops are kept up, such irregulars as exist being used to assist the police. Two serviceable guns are used for firing salutes. The police were organized in 1901, and number 95 men under a chief inspector, besides 425 rural village police. The Central jail is at Jhābua town.

The first school was opened in 1854. There are now 17 public and private schools, of which one is the mission school at Thāndla, established in 1900. There are 283 pupils. In 1901 only 2 per cent. of the population (almost all males) were able to read and write. The State maintains three dispensaries—at Jhābua, Rānāpur, and Thāndla.

The town of Jhābua is situated in 22° 45' N. and 74° 38' E., on the edge of a small lake called the Bahādur-Sāgar, 1,171 feet above sea-level. Population (1901); 3,354. The palace, which is surrounded by a mud wall with masonry bastions, stands on the north bank of the lake. The streets are narrow, steep, and winding. Beside the lake is the cenotaph of Rājā Ratan Singh (1832-40), who was killed by lightning when riding on an elephant in the Nilkanth procession, during the Daschra festival. The town is 11 miles from the Meghnagar station on the Godhra-Ratlām section of the Bombay, Baroda, and Central India Railway. It contains a State guesthouse, a dispensary, a British post office, a jail, and a school.

**Jhajjar Tahsil.**—*Tahsil* of Rohtak District, Punjab, lying between 28° 21' and 28° 41' N. and 76° 20' and 76° 56' E., with an area of 466 square miles. The population in 1901 was 123,227, compared with 119,453 in 1891. It contains one town, JHAJJAR (population, 12,227),

soaring at great heights, I observed in their company a very large thick-billed heron-like bird which I supposed was the adjutant (*Ardea argala*). It disappeared before the rains set in.

The cinnamon-coloured sparrow (*Passer cinnamomeus*) is often seen among the pine-woods of Kussoulee, and in the jungles along the lower hills.—The gaura finch (*Mclophus melanicterus*) frequents fields and cultivated localities.—The common house-martin of the Neilgherries and Southern India is identical with *Chelidon urbica* of Europe. On the Lower Himalayas and Cashmere ranges a bird appears in spring very closely allied to the above, but all I have shot (amounting to three) differed in one or two particulars,—chiefly in being smaller; the axillary feathers were *brown* instead of grayish-white, and their tails were even. Mr. Gould has named it the *Chelidon cashmeriensis*.\* This martin migrates to the the Punjab during winter.

The golden stachyris (*Stachyris chrysea*) is a little wren-like warbler usually seen among the foliage of fruit-trees, about the size of a willow-wren; iris is red.—The verditer flycatcher (*Niltava melanops*) appears in spring, and is one of the most common flycatchers. Its habits and haunts are similar to the most typical species, perching on prominent situations, from whence it makes excursions in quest of insects. The luteous-coloured finch (*Leiothrix luteus*) is common in the valleys about Dugshai. I have seen it in the plains in winter.

The blue rock-thrush (*Petrocincla cyanea*). This is the *P. pandoo* of Colonel Sykes, and may be said to be universally distributed over South-eastern Europe and the temperate and torrid parts of Asia. By some it is supposed to be the bird alluded to in Scripture, "the sparrow that sitteth alone upon

\* *Proc. Z. S.* 1858, p. 356.

the house-top." The difference in plumage between sexes and young birds caused much confusion with the earlier Indian naturalists. Specimens likewise from the Himalayas have been found to have longer bills than individuals from other countries, and accordingly Mr. Blyth named the latter *P. longirostris*, but no one conversant with the Indian and Himalayan bird in nature will allow the above distinction to remain as specific. The blue rock-thrush frequents wild unfrequented situations ; now and then I have seen a solitary individual perched erect like a thrush on the roof-top. It is not common anywhere ; and, although familiar with its appearance at different seasons of the year, I had not an opportunity until long after leaving Asia of listening to its melodious note. The European form is indigenous to the island of Malta, where, among the shattered rocks that strew the coast, this fair songster may be seen sallying forth in the bright clear morn, singing, as he flutters from pinnacle to cliff, whilst the rocks and caverns resound with his pleasing strains.—The Himalaya owl (*Athene cuculoides*) is common in the woods and jungle, and is diurnal in its habits so far that I killed one at mid-day with a rat in its talons ; however, the bird is most often seen at dusk. Its favourite food consists of mice, shrews, and large coleopterous insects. The pretty pigmy owlet (*Athene brodiei*) is often found in bushes. This diminutive little creature is little more than half the size of the last. Its call is measured, and composed of two notes frequently repeated. Its egg is white, and generally laid in the hollow of a tree, without any preparation whatever.

The red fox (*Vulpes montanus*) is generally distributed over the lower and middle regions of the Himalayas, up even to the limits of frost. Although often seen during the day, its depredations are chiefly at night, when it prowls about houses

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after poultry, and in the jungles, when it preys on kalij pheasants and other birds. This handsome species is readily recognised by the rufous on the back and pale fulvous on the legs. The little Bengal fox and the jackall are met with in the valleys of the lesser ranges, but do not range far into the interior. The hyena preys extensively on poultry, and often carries away dogs from the stations. A friend shot a very large hyena close to his house at midnight, after repeated attempts to capture the animal, which had cleared out several poultry-yards and killed many dogs. Such depredations are usually put down to the leopard, but it rarely ventures so near the habitations of man. The name *chetah* is applied in a very extended sense to all the leopards. The leopard is generally distributed over the lesser ranges, but is constantly wandering from place to place, like the tiger, which is occasionally met with in the sub-Himalayan valleys.

We recrossed the Gerrie on the 26th of March. The day was charming, and the scenery of that beautiful and sylvan description so characteristic of many sub-Himalayan valleys. At our feet rolled the river, dashing furiously over its rough limestone bed, and gradually becoming less turbulent, until, settling down to a quiet yet mighty flood, it moved steadily onward through the valley, the sides of which were clad with the gayest attire of spring. The oak, plane, wild apple, apricot, etc., sent forth their various shades of green. Many were in blossom, and the deep purple of the pomegranate's petals added a richness to all around. Above us rose a hill covered with profusion of bush and tree, where we had spent the day hunting kalij pheasants and peafowl, and now, tired and weary, were enjoying the evening around the log-fire, while a barking-deer clamoured loud in the jungle close by, as if in defiant reproach for a young buck which had fallen to my gun.

Night-jars (the whip-poor-will of Central Asia) sent forth an occasional "*tuu-u-o*," as they flitted noiselessly past us, when, through a gap in the jungle, we observed a stalwart native approaching. He had a matchlock on his shoulder, and was dressed in gray home-spun flannel. His appearance and habit were characteristic of the Himalayan shickaree; the long flowing beard, ample turban, short tunic fastened round the waist by a belt of light-brown sambar-skin, to which the powder-horn and pouches were attached, capacious breeches ending at the knees, from which the limbs were encircled with flannel bandages to the ankle, while on his feet were sandals made of grass, and several pairs ready for use were attached to his girdle. He was one of those houseless wanderers similar to the trapper or leatherstocking of Fenimore Cooper, who made his livelihood by tracking the wild denizens of the mountain and forest. He had heard of our arrival on the Chor, and came to offer his services and show us where bears and deer were plentiful. Although an old man, he was still wiry and active, and like all whose lives have been constantly spent in the dangerous excitement of the cragsman's, he had intense pleasure in recounting his past exploits, especially ibex-hunting in Kuloo, and the days when, in the service of a British officer, he had led him to places where the "burrel and ibex were plentiful as sheep."

This was my first introduction to one of a race with whom many of my subsequent adventures were intimately associated; he was the type of a set of as fine manly fellows as one could meet anywhere—men whose lives have been spent among the dizzy crags and towering mountain-tops; early taught to court difficulties and dangers, they fear no hardships, and are insensible to fatigue. With such the young Englishman gratifies his love of adventure, as with pole he picks his way

across the dizzy height, to where yon ibex stands perched on the brink of a yawning gulf ; his rifle laid across the rock, with a steady hand and fixed eye he marks the fatal spot ; scarcely done when the leaden messenger is on its unerring course, and the noble quarry is seen rolling and bounding down the precipice. It is with such reminiscences I connect the Himalayan shickaree.

The jungles along the banks of the Gerrie are stocked with barking-deer, but although we saw many daily they were too shy, and could not be got at from the denseness of the jungle. Young brought me a specimen of that beautiful sunbird called the red honeysucker or goulparah creeper (*Nectarinia goulpariensis*) ; it is not uncommon in the more sheltered parts. The note of the male is sweet and varied. In habits, like the sunbirds in general, they resemble the humming-birds, of which they are the Eastern representatives.

We spent a day in Thor Valley among the game, and I observed footprints of wild pigs in great abundance. A herd of large monkeys, with fawn-coloured bodies, black faces, and white cheeks, were seen in a wood. The three species of parakeet are found here feeding on the buds and tender shoots of trees ; the rose-ringed and plum-headed have been mentioned before ; the slate-headed (*Palæornis schisticeps*) is only met with in the mountains, and never affects the plains of India. It is usually seen in flocks, and during the harvest-season commits depredations among the wheat and barley. Each of the three species is readily distinguished on wing—the tail of the rose-ringed is a *uniform green*, that of the plum-headed has the tip *white*, the other has the extremity *yellow*. We came on a wounded fawny vulture by the side of a pond ; one of the poor animal's legs was terribly mutilated, yet with great courage he repelled the attacks of our dogs by

means of his bill and wings, and even seized my loading-rod and held it so firmly in his beak that it was only with great difficulty he could be made let go his hold. The excursion having come to a close, I reviewed the produce of my labours, and arranged the large collection of skins ; whilst my friend, no less pleased, produced the game-register, in which was recorded the death of 1 barking-deer, 6 hares, 1 monal pheasant, 5 cheer pheasants, 1 plach and 32 kalij pheasants, besides 58 black partridges, 12 red-legged partridges, 1 gray partridge, 3 bush quail, 6 jungle-fowl, and 4 pea-fowl. "We should have done better," said Young ; "let us hope the autumn will bring good luck." As the sequel shows, his anticipation proved true.

## CHAPTER VI.

Second Excursion to the Chor Mountain—Leopards and Tiger-cats—Monkeys—Royal Falcon, Daurian Swallow, Himalayan Siskin and Goldfinch—Monal Pheasant Shooting—Wood-partridge—Small Birds—Nutcacker—Black Bears—Green Woodpecker—Golden Eagle—Climatic Influence on size of Birds—Sporting-bag—Redheaded Bullfinch—Flame-coloured Flycatchers—Paradise Flycatcher—Thrushes—Fish-owl—Red-starts—Lark-finch—Brown Water-ousel.

WE started on our second excursion to the Chor on the 24th of September. The crops were cut, and the autumnal tint was beginning to show on the leaves of the forest. In the corn-fields about Thor we picked up a few common quail, and one of the black-bellied species (*Coturnix coromandelica*), which occasionally wanders up the valleys. Peafowl, pheasants, and partridges were plentiful. We pushed on, however, for the monal-shooting had been reported excellent; and we were full of hope, and anxious to engage in the sport.

Among the feline family frequenting this region of the mountains the most common is the leopard. There seems, however, to be some variety in the colour and size of the individuals occasionally to be seen on the Dugshai ranges. One variety is said to have fewer spots and a smaller head than the other. I give the latter assertion entirely on the authority of native sportsmen, who are often deceived by appearances. They describe no less than five distinct species:—1. A fawn-coloured animal without spots, called

“chankoo,” inhabits the mountains about the sources of the Ganges. 2. The panther (*F. pardus*); lower and forest regions. 3. The leopard (*F. leopardus* ?)—“dheer hay” of the natives; affects the same situations as the last. 4. The white leopard or ounce, and called the “burrel hay;” found at high altitudes, near the persistent snow-region. 5. The small leopard, above named, “goral hay,” is so called from its partiality to feeding on the goral, or Himalayan chamois. A most indefatigable and discerning sportsman, Mr. Wilson of Mussouree, has made a similar observation.\*

I believe the *Felidæ* of the Himalayas have been by no means well studied; certainly, if there are not more species, those at present known are subject to great variety. The striped and spotted jungle-cats of these regions are numerous. Of the former I have only seen Horsfield’s tiger-cat (*F. horsfieldii*), a very handsome and beautiful species, often met with in the lower jungles, where it preys on small quadrupeds and birds. From a distance it is like a diminutive leopard. The Bengal cat (*F. bengalensis*) is plentiful in the sub-Himalayan jungles. It is difficult to say whether the colouring of the generality of the domestic variety met with in the same situation differs in any degree from their wild congeners. Possibly they may interbreed.

The Lungoor monkey (*Semnopithecus schistaceus*) is usually seen in herds in pine and oak forests. The highest point at the sanatorium of Simla is called “Jacko,” from the number of this species which were met with in that locality. The animal is common in the Chor forests, and similar situations on the western ranges. It is dark-slatey above; below, pale-yellow; tail long and tufted; hair on the crown of the head short and diverging. There is considerable variety of

colouring ; the young incline to brown, and the old become more or less hoary. The bunder (*Macacus rhesus*) is the most common. It is distinguished from its compeers by the crown of the head being dusky brown ; body inclining to ash ; face naked and dusky red. It is easily domesticated and taught a variety of tricks. The Entellus monkey (*Scmnopithecus entellus*) is ash-gray on the upper parts ; darker on the shoulders and lower part of the back ; tail grayish-brown ; hands with a slight shade of black ; body slight ; limbs long and slender ; tail lengthened. This species has been mistaken for the Lungoor, and *vice versa*. The entellus is found on the lesser ranges and India, whereas the other is partial to forests at high elevations. There is, however, great variety in the colouring of the Himalayan quadrumana, and, like the last family, their natural history is by no means perfect.

I killed the shaheen, or royal falcon (*Falco peregrinator*), in the centre of the cantonments of Dugshai while it was stooping on a Himalayan pipit, and observed it once or twice on wing afterwards. The bird is by no means common, and much in request for hawking. I saw it among the falcons belonging to the late Rajah of Puteala.

The Daurian or red-rumped swallow (*Hirundo daurica*) is plentifully distributed over the lower regions in summer, but migrates to the plains of India during the cold months. It has much the appearance of the chimney-swallow, which, although common in Cashmere and neighbouring ranges, does not seem to frequent the mountains about Dugshai. The red-rumped swallow builds on the under surfaces of jutting rocks. Its nest is oblong, and has usually two or three openings. The Himalayan goldfinch (*Carduelis caniceps*) at first sight bears a striking resemblance to the European

species, but differs in wanting the black on the hind head. The song is fully as rich as the other. Many are caught on the hills, and imported to India. Another congener to a well-known European bird is the Himalayan siskin (*Carduelis spinoides*). It likewise differs in some well-marked particulars. The plumage of the male resembles the female of the former and the pine-siskin of North America. The bill is stouter, and the whole appearance of the little creature is less elegant. Its call-note is not so loud or joyous, but in habits and haunts they are very much alike.

There is a rich and picturesque beauty at this season in the little red patches of "batu" growing around the villages or along the terraced sides of the valleys, looking from a distance as if red sand was strewn on the soil. The mountain-sides were covered with long yellow grass, among which the blue flowers of the aconite were conspicuous, while the little rice-kates teemed with a rich harvest, and showed there was plenty in the land for man and beast.

Lammergeyers were common, and generally observed circling around the mountain-tops in quest of small quadrupeds and young partridges. A pair attracted us from our beaten path to climb a steep ascent, expecting to find their eyrie, which turned out only an ancient roosting-place strewn with bones of sheep which had evidently been carried from the European stations more than ten miles distant.

The pine and oak forests of the Chor were reached on the sixth day, when, to our intense delight, we soon found the pheasants far outnumbered previous expectations, for the ravines resounded with their loud screams, and the higher we went and the deeper we penetrated into the dense forests the more plentiful they became. The cool days, cold, even frosty nights, added increased vigour to our exertions. Our table



actually groaned with game, and if there is one gastronomic remembrance of those days more agreeable than another, it is the delight we felt on returning at nightfall with a hunter's appetite to enjoy the monal outlets which our excellent Bengal cook prepared in what he called "his own way." We found the monal most plentiful in the little openings in the forest, where they were feeding on the seeds of wild balsams and various sorts of earthnuts. The above was the most common species next to the plach; a very few cheer were observed, for the region was too high for them and the kalij pheasants. My companion killed a wood-partridge (*Arboricola torquicola*), the only one I have seen in its native haunts. It is rare on the Chor mountain, but it is by no means so in some situations near Mussouree. The buntetur, as it is called by the natives, frequents the depths of the forest, and is usually met single or in pairs. Besides game, I managed to add to my collection several new and little-known birds. The thick boughs of the pine offered excellent retreats for many interesting sorts. The Himalayan golden-crested wren I shot in company with the black-crested titmouse (*Parus melanolophus*), which somewhat resembles the marsh-tit of Europe. It is usually seen in flocks, and sometimes associated with another pretty species the gray-backed tit (*Parus dichrous*), which is known by its brick-red iris; the forehead and under the ear-coverts a dirty white; upper parts grayish blue; breast, belly, and vent ochrey white. The male is crested. I believe this is the first record of this species having been seen on the western ranges; it is not rare in Nepal. One of the most beautiful is the yellow-cheeked ox-eye (*Parus xanthogenys*), which is like the English bird in some respects; it has still, however, a closer ally in the Eastern Himalayas. The Himalayan nuthatch (*Sitta himalayana*) is the most common species of a genus which fur-

nishes several very closely-allied forms. Moving noiselessly up the trunks of the pines a creeper (*Certhia himalayana*) is recognised. Differing only in very slight degree from the British bird; and seen sporting from the extremity of one spreading bough to another, in true flycatcher style, is the restless little speckled flycatcher (*Hemichelidon fuliginosa*). The nutcracker (*Nucifraga hemispila*) is oftener heard than seen; its harsh call resounds through the forest, and awakes the echoes of the glen. It is a solitary bird, and delights to lurk among the tops of the forest-trees.

The adult plach pheasant (males in particular) are very wild and wary. We shot many females and yearling birds, but only succeeded in procuring three specimens of old males. I shot a pied variety of the monal, with white feathers among the wing-coverts. A few seemingly adult male birds retained the brown-coloured feathers of the first year among the gaudy blue wing-coverts, but the young of both sexes showed no disposition to change their sombre garb. I conclude, therefore, they retain the plumage of the female until the second year. Many of the two sorts were seen feeding on the wild currant and gooseberry. One morning we happened to get into a narrow defile leading towards the summit of the mountain, profusely covered with ferns, balsams, dwarf-bamboo jungle, and long dank vegetation, through which we could scarcely pick our way, much less see the great numbers of monal pheasants which were continually rising around us. I had just discharged my gun at a flock of upwards of twenty monal which rose in front of us, when within one hundred yards were two black bears (*Ursus tibetanus*) ascending a service-tree in quest of fruit; but they caught sight of us, and were off long before we could draw shot and load with ball. My companion, in spite of the uncertain footing and obstacles,

killed ten monal in an hour. In the depths of these solitudes, creeping up the trunks of ancient pines, or flying wildly across the valleys, uttering its loud scream as it lights on the side of a tree, is often seen the beautiful green woodpecker (*Picus squamatus*). I was crossing a deep ravine one morning, when a golden eagle sprang from a rock with a kalij pheasant in his grasp. It was the first occasion of my meeting with that noble bird in Asia. I well remember how he mounted into the sky with his prey, casting a defiant look downwards at us ; but our Eley's cartridge reached him, and he fell lifeless, with his quarry in his talons. It was a young bird of that or the previous year, with a good deal of white on the tail ; weighed 8 lbs. ; total length was 2 feet 8 inches ; and between tips of wings 6 feet 4 inches. The golden eagle is not common on the Himalayas. I saw several woodcocks (*Scolopax rusticola*), and one or two solitary snipes (*Gallinago solitaria*), in the shaded situations and more secluded valleys of the Chor. It is wonderful how much climate and situation influence the size and general appearance of individual species. I do not think naturalists are sufficiently alive to this. For instance, the black partridge of the plains of India is not so heavy or so well plumed as the bird of the Himalayas. Even the kalij pheasant met with in the sub-Himalayan jungles is decidedly smaller than the same species found in the forests of the middle region. The differences in such-like cases are very striking, and no field-naturalist can overlook the effects of these great modifiers of natural objects. It would be well, however, if indoor students bestowed more attention, and made a somewhat more liberal allowance when determining specific distinctions.

One forenoon I saw a bearded-vulture stoop on a monal, perhaps a wounded bird, and bear it off in his talons with the

greatest ease. I doubt, however, unless when the monal is taken by surprise, if the vulture is equal to it in rapidity of flight.

After eleven days' uninterrupted happiness, we bade farewell to the Chor and its splendid scenery. The grand object of my visit was gained : I had made myself acquainted with the habits and haunts of its most interesting denizens.

The well-known bullfinch of Europe is represented on the Himalaya by a set of extremely beautiful and interesting congeners. Two very characteristic species are the orange-coloured (*Pyrrhula aurantia*) and red-headed bullfinch (*P. erythrocephala*). The former will be noticed hereafter ; the latter is not uncommon in shady groves and woods of the lower and middle regions ; about 6 inches in length, head, neck, and breast reddish-yellow, becoming fainter towards the belly ; the vent and rump white ; back bluish-ash ; quills and tail glossy black. The female differs from the male in wanting the red colour on the breast, and resembles the female of the European bullfinch ; also the colouring on the head is less clear. The flammeous flycatcher (*Pericrocotus flammeus*) represents a genus of beautiful birds. The males differ very much from the females in colouring. While red is the prevailing hue of the former, the same parts are yellow in the other sex. The crimson-rumped flycatcher has been already mentioned. There are besides various other species, such as the rose-coloured (*P. roscus*), found in Continental India ; the short-billed flycatcher (*P. brevirostris*), a native of the Eastern Himalaya ; and the black and scarlet thrush (*P. speciosus*) of Latham, skins of which I have seen from the Western Himalaya, but never had the good fortune to meet with this beautiful bird. The flammeous flycatcher frequents woods and forests. I have seen flocks at elevations of from 8000 to

9000 feet, flitting among the pine-tops and frolicking with each other, or sporting about in quest of insects, the deep red of the males contrasting with the like brilliant yellow of the females. Their call is loud.

In oak-forests, feeding on the fallen acorns, were flocks of missel-thrushes (*Turdus viscivorus*). This species performs an up-and-down migration on the western ranges, being found at high elevations in summer, and in the more sheltered situations of the valleys during winter. My specimens, procured on the Chor, and subsequently in Cashmere and Ladakh, agreed in every particular with the bird of Britain, being only a little larger. The black-throated thrush (*Turdus atrogularis*) is generally distributed over the woods and cultivated tracts of these ranges ; both in habits and haunts it bears a close resemblance to the last species. It is subject to great variety—so much so, that unless we are familiar with these changes, nothing would be easier than to mistake different individuals for distinct species. The changes appear to me to affect young birds chiefly, whereas situation doubtless has much to do, inasmuch as the species is found on the plains of India and the alpine regions of the Himalayas. The black-throat is wanting in some varieties, and there are several well-marked similarities to what has been called the red-necked thrush (*Turdus ruficollis*), which Mr. Hodgson considers a distinct species ; the latter I have not seen.

We were startled one night by the unpleasant laugh of the fish-owl (*Ketupa ceylonensis*) ; no sound grates harsher on the ear, or is more calculated to bring back recollections of hobgoblins, than the loud hollow voice of this fine bird, nor is it less startling to creep through the bush and come suddenly on an individual moping at mid-day on a branch overhead, flashing his large orange eyes full on your face, as with outstretched

wings he snaps his bill, or hissing defiance makes straight off to the nearest cover, pursued by crested bulbuls, jays, etc. This species is not often seen, as its mid-day haunts are in impassable parts of the jungle.

The hill-blackbird or blue water-thrush (*Myiophonus temminckii*) is one of the most beautiful and common tenants of the Himalayan streams. It builds its nest on the cliff over the mountain torrent; during incubation the male may be seen sallying forth, sporting from cliff to cliff, his melodious note sounding sweetly among the roaring of the troubled waters. The song of this species has a resemblance to that of the blackbird, but is softer. The blue of the body is more intense on the breast, and forms a gaudy halo across the forehead. Another fair denizen of the mountain stream is the white-capped redstart (*Ruticilla leucoccephala*) which must not be confounded with the chestnut-bellied or Guldenstadt's redstart (*R. erythrogastra*) a native of the more Alpine regions. The first is distinguished from the other by having the basal portion of the wing quills black.

Associated with the white-capped redstart is frequently observed another and smaller species, the plumbeous or sooty redstart (*Ruticilla fuliginosa*), a diminutive little creature seen hopping around the waterfall, vibrating its tail, which it spreads out like a fan. It is not more than five inches in length. On bare situations and sheepfolds the sober-coloured mountain lark-finch (*Leucosticte nemoricola*, Blyth) is common. Like the British "snow-flake" they may be seen in compact flocks flying from place to place. They congregate often to the number of 300 or 400 on the lesser ranges during winter, and ascend even to the limits of forest in summer. Its call resembles that of the linnet.

The brown water-ousel (*Cinclus asiaticus*) is very generally

distributed on the streams of the lower and middle regions, its habits and haunts closely resemble the European dipper (likewise found on the Cashmere mountains) from which it differs only in colour—being a snuff-brown.

## CHAPTER VII.

Hill Stations as Sanitaria—Departure for the Plains—Indian Encampment and Marching—Sand Grouse—Antelope—Birds of Passage—Wild Animals—Sediment carried down by the Indian Rivers—Chenab—Great White Heron—Little Cormorant—Quail, Snipes, their Migrations—Black-winged Falcon—Jhelum—Battle-field of Chillianwallah—Rawul Pindee—Munikyala Tope and Coins—Scenery—The Goral or Himalayan Chamois—Climate—Flora—Geology—European Birds—Hot Months—Raven—Black Ibis—Bald-headed Eagle.

THE naturalist may continue his out-door studies on the Sub-Himalayan ranges until the middle of June, when the monsoon sets in, and renders travelling very difficult, and often impossible. At times it rains uninterruptedly for days. Vapour-charged clouds often envelope the mountain-tops, while a few hundred feet below the sun is shining brightly; it is like walking out of the densest London fog into an Italian sky. This is particularly evident at the sanitarium of Simla, and even on the lower hill stations. All are evidently too high for invalids; in fact, we have overdone our good intentions in sending them from the torrid plains to the region of clouds and storms; a lower elevation is clearly indicated, where the temperature is more equable all the year, and the weakly removed from injurious influences of the humid atmosphere of midsummer.

Rapid movements consequent on march are against making anything like close observations regarding the natural history of a country, nor is the midnight tramp



along a dusty road at all likely to form a pleasant prelude to an excursion in the heat of mid-day, in a climate which requires that all journeys be performed before sunrise. Nomadic life in a marching regiment in India has its attractions nevertheless, and those who are content to follow out the routine will find, on the score of health, that there are few more salutary states of existence—the constant changing scene, the varied novelty of every day, and regular habits, have a wonderful effect on man and beast. The pale face becomes bronzed, and the climate-worn soldier plucks up, and after a few weeks' steady marching, and away from the debilitating grog-shops, the men look as if they could do anything, or go anywhere.

An Indian camp breaking up would form a fine subject for the painter. Suppose the hour 3 A.M. No sooner does the bugle sound than the quiet of the preceding hours is broken, and the noise of wooden mallets and the bellowing of camels soon arouse us from our slumbers. Tents are observed falling as if by magic, the white rows of canvas streets disappear one after another, louder and louder roar the camels amid the hum and discord of human voices. The turbaned native and red-coated soldier are seen mingling in inextricable confusion. By the light of the camp fires, the camels' gaunt figures, or an occasional elephant laden with tents and heavy baggage, defile past one after another; the dark forms of officers, just turned out of bed, cluster around the blazing straw fires. Again the bugle sends forth its shrill and deep-toned call "to arms," when all rush through the gloom, the band strikes up a lively air, and headed by two native torch-bearers to light us on our pathless way, in ten minutes the regiment is once more on its orderly march, while nothing remains but the dying embers of the fires, a

lagging native, or broken-down camel, to mark the scene so full of busy excitement half-an-hour before.

We left Dugshai in the beginning of November, and after a few days spent at Kalka preparing for the march, started for Rawul Pindee, in the northern Punjaub, by way of Loodiana and Lahore. At Kalka I had a morning with the Rajah of Puteala's falconer, and several gos and chippuck falcons (*Falco badius*) were flown at black and gray partridges. The sport was not exciting, I believe chiefly on account of the birds having been badly trained. As soon as a partridge rose, the hawk was slipped; and if he caught the bird, it was generally just as the latter was about to drop into the cover.

The European short-eared owl is not uncommon in the jungle; one shot at Kalka had a palm squirrel in its claw. The painted or lesser sand-grouse (*Pterocles fasciatus*) differs in its habits from the other species met with in India, by preferring jungles to the open country. Its flight resembles the night-jar's, and its haunts are similar. It is easily known from the others by the white and black band on the forehead, which is wanting in the female; the latter is larger, and, instead of the broad band on the breast, the lower parts are marked with transverse lines. This species is not gregarious. The large "black breast" (*P. arenarius*) is at once distinguished by its size and even tail from the "pin-tailed grouse" (*P. exustus*), which is by far the most common; both are met with in flocks in fields and waste places. Their flight is strong; and although their flesh is tough and unsavoury, they are much sought after by European sportsmen. I have been informed that another species is sometimes seen on the north-west frontier of the Punjaub, possibly the large pin-tail (*P. alchata*), which is said to be plentiful in Afghanistan and

westward. In the woods and jungles one can scarcely miss observing the beautiful orange-backed woodpecker (*Brachypeternus aurantius*) ; its brilliant yellow back is conspicuous at all times.

At Morindah, a halting-place, there was a fine tope of mango in the middle of a desert plain ; here we encamped for three days, in consequence of the sudden death of one of our officers, whom we buried at the foot of one of the trees in this wild untenanted waste. A small travellers' bungalow was the only human habitation within many miles.

Almost every morning, at and before daybreak, large flocks of geese chiefly (*Anser indicus*) and ducks were observed migrating southwards. There were great numbers of peafowl in the sugar-cane fields, but the natives preserve them with so much care that it is considered next to sacrilege to molest them in any way. In the wheat-fields near Loodiana we bagged abundance of pin-tailed grouse ; and among the sand hillocks, covered with bent, three houbara bustards were shot. In the more level places, where a thick-leaved shrub abounded, hares were plentiful. The Bengal fox and the jackal were common. I saw a hyena, and killed a fine specimen of the gray ichneumon (*Herpestes griseus*) or moongus. The male is much larger than the female ; they breed in captivity. Wherever irrigation appeared, or there was stagnant water, the spur-winged lapwing and the yellow-headed wagtail were common.

It is scarcely possible to estimate the amount of sediment borne down by the great rivers of India. What vast changes must take place even in a century in the bottom and configuration of the Indus ! we can clearly trace its past changes in Scinde, and in the Punjaub, inasmuch as the ancient beds are

six miles distant from where the rivers now flow.\* That their channels must be constantly changing, we have only to look at their excessively impregnated waters, almost like pea-soup, boiling and eddying along their muddy banks and shoals, which render the navigation so uncertain and difficult. Thus, like the Nile, they are constantly changing their channels, taking up what they had deposited long since, and forming fresh channels where the river had run ages before. I was forcibly impressed with the truth of this in having been shown a village on a bank of ancient river alluvium, near the field of Aliwal, that six years before was upwards of a quarter of a mile inland, whilst at the time of our visit the greater portion had been washed away, and the remainder of the houses abandoned by the inhabitants.

The country between Ferozepoor and Lahore is for the most part cultivated, and covered with fields of wheat and groves of dāte, mango, acacia, peepul, etc. The famous old Mussulman city of Kussor is worth a visit, were it only to examine its fallen grandeur. Among its old temples, ruined walls, and broken aqueduct, are to be traced the remains of a once important town, which the great Runjeet Singh levelled with the ground when employed in consolidating the Kalsa dynasty. The Chenab river at Wezeerabad has little of the majesty and appearance observed in its course through the Himalayas; the roaring mountain torrent is transformed into a muddy river, whose banks are often almost level with the plain, especially in the neighbourhood of the city above mentioned, where annual inundations leave great swamps in which wild-fowl congregate during winter. There, wading in shallows I observed the great white heron (*Egretta alba*), a

\* See an interesting paper on the ancient and present channels of the Ganges by Mr. Ferguson in *Quarterly Journal Geol. Society* for 1863.

handsome bird, and easily distinguished by its large size and snow-white plumage. The lesser cormorant or dwarf shag (*Graculus sinensis*) frequents the rivers and marshes of the Punjaub, and is easily distinguished from the other cormorants by its smaller size. I found abundance of mallard, teal, pin-tailed ducks, egrets, the Indian rail, greater bittern, and the handsome little black-bellied tern, so common on the Indus.

Proceeding northwards from Wezeerabad, we entered a district more or less uncultivated, and often covered for miles with tall scrubby jungle, where the sportsman might pick up a few quail at almost any season of the year, and by beating the bushes make a fair bag of gray and black partridges and hares. From the great numbers of quail met with in the fields during the ripening of the grain, and their sudden disappearance afterwards, it is generally supposed they migrate, and in certain situations this may doubtless be the case ; but I am inclined to believe that in general they disperse themselves over the jungles of the north-west, and congregate when the wheat and barley are beginning to ripen. A few snipes are found at all seasons on the marshes of upper Bengal, but the majority come and go with considerable regularity. In the Punjaub they are plentiful from December to February, and at the same season are said to visit the lakes of Cashmere. September and October are their months in the Deccan, and I believe in Southern India they come earlier ; their migrations, however, are not well-defined. The black-winged falcon (*Elanus melanopterus*) is generally dispersed over the country ; few rapacious birds have such a wide geographical distribution as this pretty little hawk, which is found in Asia, Africa, and south-eastern Europe.

Proceeding towards the city of Jhelum, the country has very much the same appearance as has just been detailed.

Thick, bushy jungle alternates with large open spaces, which are cultivated, or overgrown with grass. The Sewalik range and the Peer Pingal stand forth in their still grandeur, the former only a few miles distant, the latter seen bounding the horizon, capped with a broad covering of snow. We passed the little villages of Koree and Russool. The latter stands conspicuous on a spur which runs from the Himalayas into the plain, and ends in the jungle of Chillianwallah, so memorable in Indian annals. Two years had not sufficed to obliterate all traces of the sad struggle, for the first memorial we encountered was the graveyard, a little square, not 30 yards either way : there, in rows, lay fifty-three officers and several hundred men. It is said to have been the spot where the commander of the forces stood during the action, the ill-fated hillock over which rolled the round shot which called forth the ill-judged order for an advance. On our left, at a little distance, was the village, and in front and between us stretched tall and bushy thickets, intersected by little green patches. In this ambuscade the cannon and matchlock men of the Sikh army were hidden, and through this labyrinth-like jungle, with its numerous devious twinings, our unsuspecting troops wound their way until they arrived at the cannon's mouth, when volley after volley of grape swept through their ranks, followed by thousands of matchlock bullets from the lurking foes behind the guns. We were shown over the field by a Sikh belonging to the village of Chillian. He minutely and, I afterwards discovered, correctly described the positions of the various British regiments, and spoke with considerable fervour of the bravery of his countrymen on that occasion, and how the "Lal Kotees" (the red coats) were obliged to retire. As I picked my way through the masses of bush and brake, grim and ghastly relics were observed strewing

the ground ; several human skulls bore deep sabre-cuts, and in one secluded spot we came on an entire skeleton. It has been asserted that all the British were buried, so that the bones we saw bleaching on the field were possibly those of the enemy.

A nobler picture of filial and heroic devotion is not enrolled in history than the death of the younger Pennycuik, who, on seeing his brave old father fall while leading on the brigade, rushed forward to save him from the Sikh tulwar, and fell himself, fighting *pro patre patriaque*. There was no lack of courage on that fatal day amongst the officers and men of the British army.

An officer who shared in the fight informed us that the night after the battle was one of awful suspense, for nearly half the British force lay dead or wounded in the jungle, and at the mercy of a cruel and relentless enemy. Peace to the ashes of the noble fellows cradled together on the field on which they fell ! History records what the peaceful naturalist even cannot pass unnoticed, and in the wild jungle the white obelisk will mark the spot, and many a British soldier will point to the little graveyard, and say, "There lie the brave men who fell on the field of Chillianwallah !"

After a pleasant march of nearly two months' duration, we arrived at Rawul Pindee, which is situated on a slightly undulating plain about 24 miles from the Himalayas. The country around is intersected and much broken up by ravines and watercourses, and the surface is covered with kankur, a calcareous concretionary deposit now in course of formation, mostly in nodules, but here and there forming masses of considerable thickness.

Sixteen miles from Rawul Pindee stands the remarkable round mound called Maunikyala tope, which is composed of blocks of stone forming a dome 70 feet in height, with an

opening on the top, by which one of Runjeet Singh's generals descended, and found a vase containing many ancient coins. Their antiquity, however, was found not so great as had been formerly ascribed to the tope, which was thought to have been built by Alexander the Great to mark one of his victories. The coins show the usual devices to be met with on those found in the northern Punjaub. Several were procured by us from the natives, who have, unfortunately, a way of not only telling lies with reference to the localities where they are found. but, as we discovered, had counterfeited several. All the coins we saw were of copper, and of the exact figure of the old native piece of Hindostan. On one side was a "male figure with crossed legs," on the other, "a man riding on an elephant"—a figure with an arm akimbo and the other extended, "and with a spear or sceptre in his hand."

The absence of wood about Rawul Pindee, and the general uncultivated and barren appearance of the country, afford few natural history materials, compared with the fertile and densely-covered slopes of the Himalayas ; nevertheless, there are attractions sufficient to repay an ardent student. Let him follow down the dubious windings of the Hummok river from its sources in the Sewalik range to where it joins the Swan—a river of fair dimensions which empties itself into the Indus on the west, near Kala-Bagh. Among the pools and deeper parts of the Hummok, the migrating waterfowl repair in the cold months ; and a few miles from the native city of Rawul Pindee, in a low marshy flat, he will find at the same season many European birds not observed in other portions of the continent southwards.

Along the base of the Himalayas, in the dense jungles, an occasional tiger prowls ; the leopard is not uncommon ; while the game birds named about Dugshai are there also



plentiful. Among the lesser ranges bordering the plains, and to an elevation of 8000 or 9000 feet, barking-deer are common; and on the more secluded and craggy mountains, the goral or chamois of the Himalayas may be occasionally seen sporting among the pine-clad precipices. This little antelope is gregarious, feeding in scattered herds, so that when the loud hissing call of alarm is uttered by one individual, the others, one by one, take it up; and if you were on a prominent position at the time, you might see from ten to twenty gorals in different parts of the hill bounding across the precipices. The goral is rather higher than the barking-deer, and more compact and agile in appearance. Its coat is dark brown above, neck and throat white. Both sexes have short black horns curving backwards, and ringed towards their base. The young are born in May or June. The immediate neighbourhood of Rawul Pindie is far from inviting. A few acacia or Persian lilacs are planted round the villages, and also set off the otherwise dismal appearance of the Englishmen's houses. The barren, stony wastes, level in some places, slightly elevated into low hills or plateaus in other situations, are covered with low scrub, and the wild oleander and olive are not uncommon. Among the few northern forms of plants I searched in vain for the dandelion, mentioned by Sir A. Burns in his travels as a "common weed." I think he must have been mistaken both as to its frequency and that of the "chickweed" and "plantago," neither of which I have seen on the cis-Indus portion of the Punjaub or even in the valley of Peshawur. The change, however, in the vegetation of the northern Punjaub, compared with the low countries, is very striking. The peach, plum, apple, pear, quince, mulberry, etc., grow in gardens. The chief geological feature about Rawul Pindie is a tertiary sandstone, common

to this part of the country and the lower Himalayan ranges ; it has evidently been much disintegrated and denuded in the plain, and here and there abuts in the form of large bare masses on the sides of ravines or irregular hogs-backs and rugged prominences observable south-west of Rawul Pindee. The great depth of the alluvium of the surrounding country, especially towards the Himalayas, may in part result from the disintegration of the sandstone, which is friable and easily broken up.

In Afghanistan, or even in Kohaut, one of the trans-Indus districts, the wild raspberry and blackberry are common. At Gündamuk, in the former country, Burns discovered white daisies, clover, and forests of pine. Even at Rawul Pindee the fauna more resembles that of Northern Europe and Asia than the south. It is, as it were, on the confines of two great regions, which differ in their fauna and flora, and partakes more or less of both. The migrations of its birds are therefore very interesting, as thereby we are enabled to trace the goings and comings of many species, and find out the habitats and distribution of individuals, whose existence before was limited to the districts they frequented. Take, for instance, the *common European jackdaw*, which may be seen in flocks in winter in the northern frontier of the Punjab, associated with the *Cornish chough* and the *rook*. The first two come from Cashmere, where I have found them in great abundance during the summer ; but the rook, if ever seen in Cashmere, is only a cold-weather visitor. I believe it comes from the west, inasmuch as it is said to be common in Afghanistan. It appears at Rawul Pindee in flocks about the beginning of September, and disappears entirely in March. I believe it is found in winter as far south as Lahore. The hooded-crow has been brought from Northern Afghanistan, and is mentioned

by Lieutenant Wood in his travels as common in Kunduz, but it is not found in Cashmere or in the Punjaub. Besides these British birds, the *chimney swallow* makes its appearance in October and leaves again for the straw-built sheds of Cashmere, where it breeds and spends the summer months. The *white-rumped martin*\* and *sand martin* are both likewise migratory, and repair to Cashmere and Ladakh in summer. The *black* and *alpine swifts* remain longer, and may be seen careering about during the summer evenings, especially after a shower of rain. The *ring-dove* is a resident on the sub-Himalaya. The *common starling* is plentiful in the north as elsewhere in Hindostan. The lapwing (*Vanellus cristatus*) arrives in flocks in the beginning of November, and departs for the west early in spring; its summer residence I have not been enabled to find out, but I imagine it must be common in certain parts of Persia and Afghanistan. The *common* and *jack snipe*, with a few painted snipe, appear in the Rawul Pindee in February and March, when I have procured as many as thirty couple at a time.

On the 11th of December I shot several barred-headed geese, and also the gray-lag, which had evidently just arrived from the north with *mallard*, *teal*, etc., as they were very tame, and allowed me to approach within easy shooting distance. Nearly all the water-fowl met with in the rivers and marshes of the north-west come from the Tartarian lakes, where they may be found breeding. At the commencement of the cold months great flocks are seen steering their course southwards to the Punjaub rivers. I have seen large flocks of the greater and pintailed grouse flying southwards in September, October, and November, and flocks of cranes, of up-

\* This is the *Chelidon cashmeriensis* referred to before. It is at least a distinct race, if not a different species, from *C. urbica* of Europe.

wards of half-a-mile in length, may be observed pursuing the same course ; their loud gabblings, and those of ducks and geese, and the harsh "guggle" of the sand-grouse, are often heard overhead at night. It is a busy time in the bird-world when the cold months are setting in on the north-western frontier of British India.

In May, as soon as the hot weather appears, nearly all the birds of the North-western Provinces retire to their various summer quarters, and only a few permanent residents remain. The raven, Indian jackdaw, govind kite, and sparrow, are about the chief. The raven hunts about houses, or sits gaping and croaking on the roof-tops at mid-day in a temperature of 130° Fahrenheit and upwards, whilst his more knowing companion, the Indian jackdaw, seeks the shade of the Persian lilac or the castor-oil plant. The kite is seen soaring aloft over barracks and bazaars, or indeed anywhere at all likely to supply refuse. Sparrows\* breed in June and July among the thatch of our verandahs, and the Indian roller in the chimney-top. After a sultry day it is usual to see the wire-tailed swallow skimming over the plains, and by the side of pools and streams a solitary green sandpiper (*Totanus ochropus*) is not rare. I have also shot the brown-backed heron (*Ardeola leucoptera*) in such situations. The black ibis (*G. papillosus*), with its red crown, is seen flying, along with the rooks and European jackdaws, during the cold months ; and besides, on the marshes about, the great and little bitterns, with the spotted rail, are not uncommon. Of the other European birds may be noticed the short-eared owl, moor buzzard, the pale harrier (*Circus swainsoni*), the cormorant, ruff, and smew, all coming and departing with the winter months.

\* This is *P. domesticus* ; the Spanish sparrow *P. salicarius* is found in Kohaut, on the west frontier of the Punjab.

The bald-headed eagle of Asia (*H. macei*) pays cold-weather visits to the inland marshes. I took its eggs as early as the 12th of December; the nest was built on an old peepul-tree near the Rawul Pindee bog. I had then several opportunities of observing the extraordinary rapid stoop of this fine eagle; the noise of its wings, and the wild scream as it darted obliquely downwards on a flock of mallard and teal (none of which, however, did it manage to capture on that occasion), brought to recollection Wilson's and Audubon's descriptions of its American ally. The handsome little chicquera falcon is plentiful in the acacia "topes." The crested lark and green wagtail (*M. viridis*), with the blue-black head in the breeding season, are both exceedingly common. The last, as before noticed, is subject to seasonal changes of plumage, which have occasioned much confusion, and led to errors in nomenclature.

## CHAPTER VIII.

Excursion to the Salt Mountains of the Punjaub—Wild Sheep—Ravine Deer—  
Geology—Ornithology—Scenery.

DURING the months of March and April the climate of the Northern Punjaub is delightful. If the heat at mid-day is oppressive, the morning and evening are always cool and pleasant. Having despatched our tent and baggage to Ranouthera, a village 32 miles south of Rawul Pindee, on the 21st March 1853, we started very early, and rode through an almost barren country, intersected by ravines and water-courses—now floundering through a stagnant pool, now cantering on a level space, covered with pebbles or rough and hard kankur. This substance, already mentioned, is extensively distributed over the Northern Punjaub, either as a surface deposit, or in heaps along the sides of river-beds and ravines. It is usually met with in the form of tufaceous nodules, but not unfrequently also in large irregularly-shaped concrete masses. When broken up and mixed with brick-dust and lime, it forms a durable cement. It is also used in road-making, and even building purposes. Professor Ansted is disposed to consider the kankur referable to the drift period.\* I have, however, observed a similar deposit in course of formation on the surface, and throughout the alluvium of rivers and streams both in the Punjaub and banks of the Nile in Egypt and Nubia.†

\* Professor Ansted's analysis is as follows :—72 per cent carbonate of lime, 15 per cent silica, 18 per cent allumina.

† *Proc. Geol. Soc. of London*, 1863, p. 8.

Long before day-dawn the well-known call of the spur-winged lapwing (*Lobivanella's goensis*) was heard. This unsettled water-sprite often flies about at night, startling the unwary with its cry of *Did dee doo it, did did did dee doo it*. Like the European lapwing, it assails all who intrude on its haunts. The horny spurs on the wings I have never seen used either as a means of attack or defence. When morning dawned we found ourselves on the banks of the Swan, one of several streams which rise at the foot of the Himalayas, and, coursing westward, empty themselves into the Indus. Many of these tributaries are completely dried up in summer, and present only a series of pools and stagnant ponds, with broad pebbly beds. They are very different, however, during the rainy season, when, after a storm, the rush of water from the slopes around is frequently sudden and furious. On one occasion, during a terrific thunderstorm which took place in February near Rawul Pindie, three soldiers were bathing in one of these pools, when the flood overwhelmed them so suddenly that they were carried away by its violence. One poor fellow was drowned, and on recovering his body, a few days afterwards, it was found to be horribly disfigured by a small species of crab which abounds in the rivers and streams of the Punjaub. The fish called masseer is prized by Europeans more for the sport it affords than as an article of food, being frequently caught by the rod and fly; however, in the more rapid parts of the Punjaub rivers throughout these mountain-courses, it attains not only a very large size,\* but its flesh is firm and savoury. It is said to spawn in the deep ponds above mentioned, where it is occasionally caught. We observed a flock of cranes in the shallow waters of the Swan. The crane migrates to Central Asia in May. Journeying on, we

\* Individuals 30 to 40 lbs. in weight have been captured.

passed little villages, surrounded by high walls of mud, clusters of camel-thorn, and fields of wheat and barley, with here and there a banyan-tree, despoiled by the elephant-drivers, who cut down its broad leaves for fodder,—now a clump of mulberry, now a ravine or a tract of waste and arid plain. Such are the natural features of this and great portions of the Northern Punjab. Among the low brushwood that covers the sides of ravines and hollows, flocks of the striated babbler (*Malacocircus caudatus*) were observed chirping and chattering in a low note, or fluttering from bush to bush with their characteristic, feeble, and unsteady flight. The blue rock-pigeon abounds in ravines; and in the fields and hedgerows the Senegal dove (*Columba senegalensis*) is generally seen either singly or in pairs. On the side of a steep ravine I killed a fine specimen of the spotted eagle, which is not rare in the district.

The black-throated wheatear (*Saxicola atrogularis*) is common; its favourite food is a small white worm, which it digs out of the sun-baked soil. Flocks of the crested lark (*Galcrida cristata*) were scattered over the desert plains, as plentifully as in the southern provinces. With the exception of an isabel tinge of plumage, so characteristic of larks and chats frequenting dry and arid wastes, there is no difference between this bird and the crested lark of Europe and North Africa.

*March 22.*—To Fureed, about twelve miles. It blew strongly during the greater part of the night, and day dawned in the usual Indian style, followed by a grilling hot forenoon. The first half of our march was very similar to that of the previous day, until we debouched on a vast plain, cultivated here and there. In the distance, running from east to west, the salt range was seen, but so far away that in the hazy atmosphere of mid-day we could do little more than define its outline. Green bee-eaters covered the surrounding country,



flitting swallow-like after their winged prey. It is extremely common all over India and westward to north-western Africa. The Indian specimens show some variety which I have not noticed in those of Egypt. Numbers of a small white-rumped martin were often noticed. No specimens, however, were procured; and although I then supposed the species to be identical with the European martin, I hesitate now in coming to that conclusion, in consequence of skins procured by me on the frontier of Cashmere having been considered to be different from the *Chelidon urbica*. Around the villages—for what native village would be complete without them?—were govind kites, Indian jackdaws, and the noisy mina birds. In the fields and sandy wastes were numbers of a pipit, usually gregarious in the cold months, and often seen associating with the crested lark previously named. This species is larger than the *Anthus agilis*, Sykes, to which its plumage bears a resemblance. Its total length is  $7\frac{1}{2}$  inches; the markings on the throat and breast are more numerous, with a slight tinge of rufous on the latter; inner surface of the wings dirty white.

*March 23.*—To Bone, fifteen miles. In order to escape the heat of mid-day, we started very early, and marched the first few miles by moonlight. The route led by narrow foot-paths through stony ravines and cotton-fields. When day dawned, we found ourselves toiling up a rather broad valley, and soon had the mortification of discovering that the guides had lost their way, and our three hours' travelling had been to no purpose; we soon, however, got on the right track, and entered on a fine open district, thickly covered with fields of green wheat, and by noon arrived at the town of Chukkowal, during a Sikh festival, and just as one of their priests (*goroo*) was about to address a large assembly in a tent pitched under

a copse of peepul and other trees. Here we spent the hottest portion of the day watching the busy scene. Pilgrims, fakirs, and dirty beggars from all parts of the country were pushing onwards towards the tent, whilst many were bathing in the neighbouring tank ;—the heat and dust, the continued hubbub of human voices, the cawing, chattering, and chirpings of impertinent jackdaws, bulbuls, and rose-winged parakeets, among the branches overhead, rendered our stay anything but agreeable, and made us only too glad when the afternoon came, and we were able to quit the scene. The red-vented bulbul (*Pycnonotus bengalensis*) is generally distributed over the Punjaub. The lesser yellow-vented bulbul (*P. leucotis*), although not so plentiful, is by no means rare, and both were often seen on the same tree.

The inhabitants of this part of the Punjaub, known as the Scind Sagour Doab, are chiefly Mussulmen. They are a fine hardy race, with long flowing beards and large turbans. The women (such as we were permitted to see) wore capacious peg-tops, their hair knotted behind, while a loose jacket and a piece of red cloth over the head completed their eccentric-looking costume.

We often noticed the pale harrier (*Circus swainsoni*), which is pretty generally distributed over Asia, Africa, and Southern Europe, evidently replacing its very close ally, *C. cyaneus*, in certain portions of these continents ; the latter species being partial to their more northern regions. He who aims at uniting the meagre distinctions which are often made to separate species may, in this instance, consider how much of the little that divide the pale and dull chested hen harriers are the result of climate, food, and such like ; but until we care less for making new species, and think more of applying ourselves to the study of animals in nature rather than in the

cabinet, there is no prospect that any great strides will be made in the discovery of laws which shall regulate the varieties and geographical distribution of species.

The Asiatic pigeon (*Turtur humilis*) is somewhat common in the Punjaub. The gay Indian roller sported before us, now perched on the stump of a decayed tree, anon pursuing its corkscrew-like flight through the hazy atmosphere. This roller is replaced in Eastern India by a very close ally (*C. affinis*). The palm-squirrel (*Sciurus palmarum*) is common in every grove. A fox, differing in some respects from the Bengal fox (in the lower parts, which are white in the latter, being in this species black), was not uncommon in the ravines and around the villages.\*

The pied wagtail (*Motacilla luzoniensis*) was plentiful at this season. Perhaps, if more was known of the general distribution of this species and the pied wagtail of Western India (*M. dukhunensis*), also the well-known European bird, the slight differences in plumage would scarcely permit us to separate them.

March 24.—Kuller Kahar, 8 miles. We started early, and performed the greater part of the march by moonlight, and at day-break reached the side of a steep ravine overlooking a beautiful valley, composed chiefly of reddish and gray sandstones, cultivated in several places, and with a large lake several miles in length occupying its centre. Flocks of wild fowl covered the surface of the lake, and the pink and white plumage of the flamingo added greatly to the beauty of the landscape.

The wandering pie (*Dendrocitta vagabunda*) was observed. I do not think I have ever seen more than two of these birds

\* This fox agrees with descriptions of *Vulpes pusillus*, Blyth.—*Jour. As. Soc. Ben.* 1854.

together. Its habits are like those of the British magpie. The pied stonechat (*Saxicola picata*) was common. The Indian robin, so generally distributed over most parts of Hindostan, is seen here in almost every village and field. Although differing altogether in the colour of its plumage from the European robin, there is a great similarity in their habits. It frisks before the door and picks up the crumbs, jerking its tail as it hops along. How often have associations of home been brought to mind by seeing this pretty little warbler pursuing its gambols before the door of an Eastern bungalow ! Although its song is far from unmusical, it wants the melody of the northern bird.

The Indian porcupine (*Hystrix leucurus*) is found among the low scrub and bush. As an article of food, its flesh is much sought after by Europeans as well as natives.

The Salt Range extends from the Himalayas across the Punjab in about a straight line to the Suliman Mountains on their west flank, and is composed of low hills intersected by narrow ravines or prominent ridges, for the most part devoid of vegetation. Limestones, saliferous red and gray sandstones, would appear to form the chief geological formations which, according to Professor Fleming, belong to the carboniferous period.\* The plateaus, excepting where extensive denudation has taken place, are covered with rounded pebbles, mostly formed from the breaking up of the limestone beds. Salt is found in veins in various situations, more especially among the sandstone and marl beds in the neighbourhood of Kuller Kahar, where there are extensive salt-mines. The barren and sun-burnt appearance of these mountains strikes the traveller ; indeed it is chiefly on that account that they become a safe retreat to the wild sheep, for, except in the cultivated

\* *Quart. Jour. Geol. Soc.* 1853 and 1862 : also *Jour. As. Soc. Ben.* 1853, etc.

districts, their dreary and desolate wastes are seldom disturbed by man.

The Houriar (*Caprovis signei*) extends along the eastern spurs of the Salt Mountains, but becomes less common as we proceed eastwards, and, I believe, is seldom met with on the ranges beyond the town of Jhelum, or southwards of the Beas River. Accordingly, in British India it is confined to the north and western portions of the Punjaub, including the Suliman chain, where it is known by the name of *Kuch*. It is also a denizen of the mountains around Peshawur, including the Khyber Pass, Hindu Koh, and Kaffiristan. The *shapoo* or *shalmar*\* of Ladakh, if not identical, is certainly very closely allied; its differences are slight, and, I opine, such as might result in a great measure from the marked diversity of climate, food, etc., of the two regions. This species is no doubt the *Sha* of Tibet described by Vigne,† and possibly the wild sheep of western Afghanistan, Persia, the Caucasus, Armenian and Corsican mountains, is the same species, altered mayhap by climate and other external agencies. I have not been enabled to fix with certainty the eastern limits of the Shapoo, but as far as all my inquiries have yet extended it would seem that, commencing at Ladakh, it proceeds westward towards the Indus, into the regions where the houriar is found, and probably when we are enabled to explore these regions we shall find out the relation between what has been supposed distinct, but which I am much inclined to consider one and the same animal. There is considerable variation with regard to the shape and curvature of horns in

\* "Habits of some of the Mammalia of India and Himalayas" (*Proc. Zool. Soc.* 1858, p. 521). The name *Shalmar* I give on the authority of an English officer who had shot the animal in Ladakh.

† *Travels in Cashmir*, etc. vol. ii. 280.

several specimens I have examined from the Salt Range and Ladakh, as well as in size of the animal. For example, the rams' horns of the Ladakh sheep were larger, and had the upper surface rounded, with the tops turned more inward; whilst the houriar had the upper surface of the horn flat: that of the female seemed in no way different from the shapoo, and the skins of both houriar and shapoo were similarly coloured. The above peculiarity is certainly striking, but too much value must not be placed on the horn as a means of distinction. Every one at all conversant with the wild goats and sheep of the Himalayas, knows that these organs are subject to considerable variety in individuals of the same species. The upper parts of the houriar of the Salt Mountains are fawn-colour, the belly and inner side of the thighs pure white. The male has long black hair extending down the dewlap. The horn resembles certain varieties of the domestic animal, but perhaps rises higher and curves more backward; it often measures from 25 to 30 inches over the curvature, and from 8 to 12 inches around the base; that of the female is small, and seldom exceeds 6 inches in length.

On the 25th of March we ascended the side of a steep ravine covered with brushwood, and gained a broad and partly-cultivated plateau, where our beaters flushed several coveys of the red-legged or chukore partridge, and a smaller species called by the natives "sisi." The former is by no means common on the range, or indeed in any part of the Punjab, although a few are met with on the plains along the skirts of the Himalayas; its favourite haunts are on those mountains where it extends northward to the Altai ranges. The average weight of an adult male is about one and a half pounds. It is found likewise in Persia and Afghanistan. Mr. Vigne mentions

having seen "red-legged partridges" in Kurdistan, but does not identify species. The red-leg of south-eastern Europe (*C. græca*) does not appear to differ in any well-marked degree from the above, inasmuch as several specimens obtained by me in the market of Constantinople, when attentively compared with *C. chukar* from the Himalayas, showed only a slight difference in the intensity of the white of the throat and the rufous of the ear coverts, which did not even appear to be constant. When we are enabled to trace a bird over a continent, and find that we change climate and enter on a country widely different in its physical aspects, it is surely not extravagant to expect that there will be some change in the colour of its external coverings, or even the size of the animal.

The sisi (*Ammoperdix bonhami*), or bastard chukore, as it is known to Europeans, is much smaller than the last. The male measures in the flesh about 10 inches, the female about  $9\frac{1}{2}$  inches. The iris is hazel, bill brownish-yellow, lighter on the legs. Its existence has been known to naturalists for several years, but all the specimens were brought from Afghanistan, where it abounds in sandy wastes and barren mountains. The sisi is not found in Ladakh, nor on the ranges to the south and east; and I think, with the Salt and Suliman chains, and probably the mountains around the forbidden Khyber Pass, we define its limits eastward and in British India. A species, closely allied both in size and plumage (*A. heyii*), I procured in rocky and barren gorges on the banks of the Nile in Nubia. It is a native likewise of Palestine and Syria. The sisi often associates with the chukore, to which in habits it bears a close resemblance; the call-note, however, is very different. The pretty little redbreast (*Muscicapa parva*) is very much like the robin

of Europe ; and, although less familiar, has many points in common. It affects hedges and dense jungle, and is usually seen solitary. This little robin has a wide Asiatic distribution, and even extends westward to south-western Europe.

On the 27th of March we pitched our little tent close to the village of Norpoor, and were not settled before its kotwal (*Anglice* mayor) arrived to offer his services in procuring supplies, bringing with him a rupee, which, according to the usual Indian custom, he held out for our acceptance. Our friend, however, appeared somewhat dubious as to our social position, and if we were acquainted with the etiquette which expects that gentle-folks should on such occasions merely touch the offered gift and then make a salaam of satisfaction to the host. As each of us touched the coin, our Sikh friend squeezed it spasmodically, and even closed his fingers over it, grinning most benignly when he found out that we were respectable young gentlemen, and above accepting his present—a discovery our shady jungle attire was certainly not calculated to further. I spent the day among the hot ravines, searching after wild sheep. The reflection from the sand and limestone was excessive ; and we suffered much from want of water, which was only procurable from red muddy pools in the worn-out bottoms of water-courses. After much fagging and occasional snap-shots at wild sheep and ravine deer, which we startled in the narrow lanes between the marl-heaps, I at length espied two of the former under the shadow of an acacia, and, by dint of much knee and hand travelling, managed to crawl unobserved within 50 yards, when, neglectful of the old adage, “that a bird in the hand is worth two in the bush,” I sought a nearer approach in hopes of procuring both ; but, by so doing, had



the mortification to find out that the ram had caught a glimpse of me, for he sprang to his feet, and, sending forth a loud whistle, disappeared with his companion among the tortuous lanes. This mishap was one of many such like, from which, as my experience increased, I was taught "never to lose a good opportunity in hopes of obtaining a better"—an advice I recommend in all its bearings to every young hunter.

The gray-capped bunting (*Emberiza caniceps*), the bearded vulture, and the blue water-thrush, before seen only on the Himalayas, were here occasionally observed. The bearded vulture feeds sumptuously at this season on the young houriar, which are dropped in March. The raven is common, but rather smaller than the bird of Tibet and Europe.\* The Indian carrion crow (*Corvus culminatus*) was not seen on the Salt range, nor about Rawul Pindee, where, however, the rook is plentiful during the cold months. Now and then the pied woodpecker (*P. himalayanus*) was observed on the acacia and other trees; its similarity to the greater spotted woodpecker of Europe and Western Asia, is striking; the differences lie chiefly in a less brilliant state of plumage. Again, in China there is the *Picus cabanisi*, and on the ranges of Nepal another species, *P. majoroides*; all these are perhaps capable of being brought into one species did we only know the range and limits of each in Asia. The hare (*L. nigricollis*) is not common.

We pitched our tent in the most retired spot we could discover, far distant from the villages, and in the centre of the salt district, where the houriar repair at dusk to lick the salt-

\* The raven of Tibet has been called *C. tibetanus* by Mr. Hodgson (*An. and Mag. Nat. Hist.* iii. p. 203), for the reason that it "is somewhat larger than *C. corax*."

encrusted rocks. The streams and wells in the neighbourhood being more or less tainted with salt, we found great difficulty in procuring a sufficiency of fresh water for our wants. One morning, early, while clambering across a steep ridge, I suddenly came on a Sikh sitting under a ledge of rock, where he had passed the night ; he was *minus* his nose and right hand, which he said were cut off during the reign of Runjeet Singh, as a punishment for having murdered his brother. When told that now-a-days his life would be forfeited for such a crime, he, with a sly shrug of his shoulder and twinkle of his little black eye, turned and moved down the ravine, muttering something about the difficulties attendant on such proceedings under the British rule, and no doubt bent on salt-stealing, for which he had come, whilst I pushed up the slope, and, gaining the top of the spur, had a magnificent view of the Indus on one side and the Hydaspes on the other flank, tracing their windings for many a mile, in spite of the heavy atmosphere which hung over the plains below. The heat at mid-day, especially when reflected from the sides of the red ravines, was very powerful. Of wild sheep we saw many, but the cover was scanty, and the animals always on the alert ; if a herd was feeding in a ravine, an old ram was sure to be on the outlook on some near eminence, and as soon as he apprehended danger, would send forth a loud whistle, when the whole set off at full speed. There are few ruminants in which the senses of sight and smell are more highly developed ; natives allege that their smell is feeble or wanting, but I doubt if this animal is behind any of its compeers in that respect. By European sportsmen it is frequently called the "deer sheep," and from the circumstance that although its eye, hair, gait, and bleat are decidedly ovine, it has the infra-orbital apertures

of the deer, together with the gracefully-formed limbs and fleetness of that animal. The hair is thick, and approaches nearer to the wool of sheep than the pelt of deer. The bay-backed shrike (*Lanius hardwickii*) was plentiful in bushy places, and flaunting in numbers among the yellow flowers of the acacia; the pretty little purple honey-sucker (*Nectarinia maharattensis*) was often seen in pairs, now commencing to build their nests, the soft songs of the males sounding sweetly. Surrounded by gnarled acacias, grass, and rubbish, were frequently noticed ruined buildings, evidently of ancient date. Graveyards were seen often, but mostly in secluded and out-of-the-way places, showing that large parts of the district now unfrequented had at one time been densely populated. One of these buildings, more entire than the rest, is to be seen near the village of Jubba; it is quadrangular in shape, low and flat-roofed, with a small, narrow, and arched doorway, not four feet in height, opening into separate compartments on each side of the square; these are generally occupied by itinerant fakirs. The graves appear to differ from those of the present race in having a club-shaped erect stone at the head, and one rough and unhewn at the feet, and sometimes another in the middle. The style of architecture and antiquated appearance of these remains speak of a far-back period in the history of the Punjab. A native hunter who accompanied me stated that he had often seen tigers, leopards,\* the hyena, wolf, and a few black buck, besides an occasional black bear† (*Helarctos tibetanus*), which

\* I have only seen one species of leopard in the Punjab, and that was killed close to the Himalayas; it was the true *Felis leopardus* of Temminck (*Monogr.* i. p. 92).

† See A. L. Adams, *Proc. Zool. Soc.* for 1858. A variety of this species is said to frequent the lower Himalayas near the plains.

probably finds its way across from the Lower Himalaya. However, the black bear of the Southern Provinces (*U. labiatus*) is not found in the Punjab.

*March 30.*—Although the scenery of these mountains is generally devoid of beauty, one will come occasionally on little spots by no means wanting in natural attractions. This morning we rose at daybreak, and after an hour's toil across a very stony plain covered with briars and thorns, arrived at the brink of a broad ravine, the sides of which were covered with a dense and luxuriant vegetation. The peepul, camelthorn, mulberry, and wild fig, formed small shady groves in which the fakirs had built their little temples, surrounded by gardens which rose in terraces along the steep slopes, where tobacco and the red and white opium-poppy were growing. On a prominence jutting into the ravine stood one of these shrines, which at a distance looked like a miniature castle, and far down among tangled briars and bushes rolled a clear stream, whilst numbers of peafowl in all their native elegance and beauty were sauntering in front of the temple or perched on the tops of trees—their wild cries resounding through the glen, and now and then one darted past us in all his gorgeous shades of plumage refulgent in the morning sun. It was an enchanting scene, but as the heat increased every hour, we hurried across the ravine, and on gaining the opposite plateau discovered a herd of houriar, headed as usual by two of the largest rams standing sentry by the prostrate herd. The open nature of the ground, however, prevented a near approach, and obliged me to discharge my rifle at a long range, which was no sooner done than all were up and flying with the wind, excepting one of the rams who lagged behind with a broken leg. This poor animal escaped, although pursued by us under a burning sun for many a mile up hill and down dale. When once disturbed,

it is seldom the houriæ rests for the remainder of that day, but keeps constantly on the move, selecting the ridges and most prominent points. The old are said to be untameable, but when caught young it is easily domesticated, and will herd with tame goats and sheep. The rams, however, are very pugnacious, and are often unmanageable. They fight in the same manner as the domestic sheep. When driving a jungle in search of wild pigs I observed a fine specimen of the great wild cat. It is common in the Punjaub, and hunts among the ravines and around the villages at night. In a hollow we were suddenly startled by observing large blood-stains, and in one spot decided traces of a struggle, with the foot-prints of a tiger. The villagers informed us that their cattle, goats, and sheep were frequently carried away by an old tiger which had confined his depredations to the domestic animals of two villages for several months. This would appear frequently the case with old males of many quadrupeds. The leopard seldom attacks cattle, and confines its plunderings to sheep, goats, and village dogs. The black partridge is not general in these parts, the country not being sufficiently cultivated; moreover, I do not think the chukore and this species ever frequent the same locality, although the former and the gray partridge are often found on the same hillside. Flocks of the wood-pigeon (*Columba palumbus*) were common in the fields. All the Indian specimens I have examined had the neck-patch clay-coloured and rather smaller than that of the European bird. I believe the same has also been noted with reference to Chinese specimens. It would be interesting to follow this permanent race towards the west, and see where the one ends and the other commences.

On the 2d of April, after several hot and sultry days with a close and murky state of the atmosphere, a hail-storm took

place and lasted for nearly half-an-hour. Many of the hail-stones were as large as sparrows' eggs.

The geological formations and mineral features of the salt range are undoubtedly very interesting, but there was no time to examine them with care. Above the village of Kotela I wandered over a rugged steep composed of limestone, picking up fossils at almost every step, chiefly bivalve and large spiral univalve shells, *Terebratula*, and several species of *Galerites* and other Echinodermata, until attracted by a lake on which a flock of flamingoes were resting; their tall gaunt forms looked like balls of pink and white suspended over the shallow waters; each bird had its head under its wing, and was supported on one leg. I rudely disturbed their slumbers, for, resting my rifle on the wall of an enclosure overlooking the lake, I fired into the denser part of the flock, and when the frightened host had fled, and the ball had skipped and bounded far beyond, one small pink and white object floated alone on the placid surface, but it was unfortunately borne by the gentle breeze into deeper waters from beyond our reach. The average length of many specimens procured in the flesh was 5 feet  $7\frac{1}{2}$  inches from the bill to the extremity of the middle toe, and between the tips of the wings 5 feet 10 inches. Weight about 5 pounds.

A smaller race is sometimes met with in separate flocks. The plumage varies with age and sex. The young are dark on the back, and pink on the wings, with the rest of the body nearly pure white. The female is a delicate pink all over; the plumage of the male is brightest during the breeding season.

Behind the village of Kotela a mountain rises, perhaps one of the highest of the range; its summit is clothed with the long-leaved pine (*Pinus longifolia*) and other plants which

grow on the Himalayas at altitudes of 4000 or 5000 feet. When toiling up the steep side of the mountain I was struck, on nearing the top, to notice the sudden transition from a desert to a region of verdure, and so abruptly defined that in the course of a few minutes, from clambering among decayed and burnt-up vegetation, we were wandering among long tangled grass; in fact, a flora peculiar to the temperate altitudes of the great chains northward. This little fragment, tipping as it were the summit of the mountain, might be called a "botanical outlyer," with reference to the Himalayan and Suliman chains north and west, as the nearest hill-top capable of producing a similar flora is at least from 60 to 80 miles distant.

The wild pig is plentifully distributed over all the range; wherever low dense jungle exists there it secretes itself during the day to issue forth at night and feed in the fields. In many situations whole crops of grain have been destroyed by them. When passing through a wheat-field I observed the ground covered with masticated pellets, wholly composed of the tops of wheat and barley, which they chew merely to obtain the juicy portion. Although the natives attempt to frighten them away by making loud noises, like the Himalayan black bear they soon get accustomed to the sounds, and care little for any disturbance unless in their immediate vicinity. The houriar feeds also mostly at night, repairing at daybreak to the hill-sides and inaccessible places under rocks; indeed, such appears to be the case with many wild quadrupeds whose feeding-grounds are subject to be invaded by man.

The ravine or Bennett's\* deer, better known to Indian sportsman as the "chinckara" (*Antelope bennettii*), is somewhat common on the salt range, and most parts of the Punjaub,

\* Sykes' Dukhun Mammalia, *Proc. Zool. Society*, 1831, p. 104.

but does not affect the Himalayas. The horns of the male seldom exceed 18 inches in length ; the females are smooth and usually 4 inches. The ravine deer is met with singly, but now and then from six to twelve may be seen together. The secretion from the infra-orbital sinus of one killed by me on the Salt range and rubbed on the surface of the horn, gave the latter a polished appearance, which even in the dead animal lasted for weeks ; possibly the use of this substance may be to preserve the horn from decay. With the smaller species having permanent horns, this might be the case ; but in large antlered deer, and such like, with deciduous horns, the probability is great that the animal could scarcely accomplish the task. I have, however, often noticed deer and antelope rubbing their foreheads and horns on the bark of trees ; indeed, this is a common occupation with deer when chewing the cud in the forest during the heat of the day, or when the fur is being shed.

The ravines in the district of Jubba have a peculiar appearance. Viewed from a height, they present a series of worn and angular-shaped hillocks, intersected by narrow defiles, by no means inviting to the traveller, for not a blade of grass is visible, and the disintegrated red sandstone and marl suggest the idea of sleeping volcanic embers, which we found, during the heat of mid-day, had more than a mere resemblance. I do not think I have ever witnessed a scene so perfect in its desolation. However, we determined to descend in spite of the stewing heat, and reflection from the hillocks on each side. Whilst threading our way among a series of narrow lanes, we came on a young houriar just dropped, and evidently abandoned by its mother on seeing us approach. Several herds of rams (which separate from the ewes during the breeding season) were observed dashing across ravines, offering a snap-shot occasionally. As we



anticipated, the heat by noon became excessive, and our thirst intolerable. No water could be procured save what was strongly impregnated with salt. At last, exhausted, I gave in, and must have been verging on a *coup de soleil*, as my senses began to leave me, and I felt that both eyesight and hearing were rapidly failing, accompanied by a loud buzzing sound in both ears. In this condition I lay stretched on one of the red banks, whilst the shickaree set off in search of a spring. I think I may have remained for nearly half-an-hour in this condition when I was roused by the voice of a native, and looking up, beheld a half-naked man carrying a basin of milk, and platter full of cakes, which he at once begged I would accept. This good Samaritan had seen my distress from his grass-built hut on the top of a neighbouring hill, where he resided for the purpose of guarding a vein of salt. Never can I forget the kindness of the poor fellow, who, unsolicited, came to my aid at a time his services were so sorely needed. Whilst we remained in this part of the district a young man paid us a visit. He was employed in the Salt Revenue Department. He seemed a regular Robinson Crusoe, having spent many years among these hot ravines, almost without a human creature to bear him company. He informed us that he seldom saw a white face from one year's end to another, and during the hot months was obliged to turn night into day when visiting his various posts on the surrounding hills. He was an example of a race of Englishmen born and brought up in India without the shadow of an idea of anything beyond Hindostan and its European society, and even the smallest portion of thought on these points, for in his manners he had most in common with the native, whose language he spoke more fluently than his own. He allowed that his present occupation was considered one of

the most unhealthy in the district, but that he expected to be soon promoted and sent to another part of the range, where he would have a better house to shelter him from the blazing sun. He felt somewhat concerned about the state of his health, in consequence of a fever which had twice nearly finished him ; and judging from his wan and worn face, there seemed just cause for the poor fellow's anxiety ; but, like many others, he stuck to his post until the fever came again, when, as I subsequently learned, his feeble strength gave way, and he left his bones among the haunts of the houriar. Young, during the day's ramble, found two lambkins and bagged two rams. Our little herd of houriar, now consisting of two males and two females, soon took kindly to tame goats, and frisked around their foster-mothers as they would have done with their own. The goats also became attached to them, excepting one old dame, which refused to suckle her foundling, and required to be held during the process. It was delightful to watch the lambs rushing towards the goats on our approach, and bleating whenever they found they had strayed beyond a safe distance. For several days all seemed to thrive, when they began to pine away and die one after another, with a discharge from the nostrils and cough, which I found by dissection to arise from the well-known disease pleuro-pneumonia, so fatal to the domestic animal ; arising in this case, in all probability, from the want of the maternal heat at night, when the temperature was low, even to nearly freezing-point.

The blue rock-thrush is not a rare tenant of the rocky parts, which it enlivens with its joyous song. All I have examined in the Punjaub and lower Himalayan ranges were of the short-billed variety ; the long-billed variety,\* it would

\* *Journ. As. Soc.* xvi. 150. Mr. Blyth has since adopted the view here

appear, is confined to the higher and more northern chains. The geographical range of these two varieties has not, however, been definitely settled. This species is a cosmopolite in so far as it is widely distributed over the warmer parts of Europe, Asia, and North Africa, and, like the generality of birds with an extensive geographical distribution, is subject to variety. The rock-thrush is everywhere a wild and wary bird, and not easily approached.

The pale-chested harrier, and moor buzzard, were often noticed to pounce on our dead and wounded quail; their chief food, however, appeared to consist of lizards and a short-tailed field-mouse (*Arvicola*), which is very common in cultivated districts.

Several flocks of the black-breasted sand-grouse were observed at daybreak and dusk, drinking at ponds and tanks. The rufous-rumped or Daurian swallow, and the wire-tailed species, were plentiful in the ravines. The "tooty," or roseate finch (*Carpodacus erythrinus*), was seen in flocks feeding on the unripe Mulberries; also the Malabar grosbeak (*Munia malabarica*) frequented the hedges, where its sweet, plaintive twitter was often heard. This little creature is so tame that you may approach a flock within a few yards; numbers are caught in nets and kept in confinement.

Although many of the birds of the Kuller Kahar Lake had, by the 12th April, taken their departure for the cooler regions of Tartary to breed, a large number still remained, and afforded us two days of uninterrupted excitement in procuring specimens. For several days previous to our arrival the weather had been very hot, and the day haze denser than usual. The latter may in part be owing to exhalations from

taken, indeed it requires to be proved that what he names *P. affinis* (*J. A. S.* xii. 177) is not another variety of this widely-distributed species.

the soil, but from the circumstances and localities where it is often observed, there can be little doubt that some unexplained electric or other condition is also connected with its phenomena. I have seen it in the desert of Scinde and lower regions of the Himalayas, but not in the rainless tracts of Ladakh and Tibet. A thunder-storm seems to disperse the fog, and leaves the atmosphere more or less clear for a day or two afterwards. On the night of our arrival at the lake we were awoke by a furious storm which nearly blew our little tent away ; the roar of the thunder and the brilliancy of the lightning were perfectly appalling, whilst the rain fell in torrents. The whole did not last above an hour, and left behind the usual cool and exhilarating weather, so grateful to man and beast after days or weeks of feverish heat. I well remember the enchanting scene on the bright sunny morning following, as groups of red and white flamingoes in long lines stretched along the shallows of the lake, and flocks of ducks and other aquatic birds lined the margins, or crowded in dense masses in the deeper parts ; whilst from the jungle-clad hill on the right loud wailings of peafowl, kept by the fakirs of the temple on its summit, resounded across the valley, and the green bee-eater, the usual successor of a storm, sailed around the copse under which we were encamped, pursuing with the black Indian king-crow the countless insects which come forth on these occasions, especially white ants, which appear to afford a staple article of food for bee-eaters, shrikes, and the large insectivorous birds.

Flocks of long-legged plovers (*Himantopus candidus*) were seen on the lake. It is a common bird on the weedy pools of the Punjaub during the winter months. Specimens may often be found with the legs bent and deformed, to which

this species seems subject ; also some well-marked and permanent discrepancies as to colour and size. Here, again, is a species common to the three great continents of the Old World, having several varieties, as its numerous synonyms might indicate. European birds—viz. the cinereous godwit, green sandpiper, and water-rail, are generally distributed over the lakes and fens of the Pmjanb during the winter. The lark-toed and pied wagtails are plentiful ; the former is usually seen perched on tufts of rush or grass in wet places. The little brown-coloured lapwing (*Vanellus lucurus*) I did not observe elsewhere ; it is certainly rare in most parts of India, and most probably migratory in the Pmjanb. I have been informed that it is common in Afghanistan, where, according to Mr. Blyth, it is known by the name of chizi. In habits it more closely resembles sandpipers, frequenting the margins of pools, along which it runs at great speed. A small brown sand-martin was often seen during the excursion. I took it at first for the bank-swallow (*H. riparia*), but I am doubtful if met with in N.W. India. It differed also from the short-tailed swallow ; and the only other small martin at all likely to agree with it is the Nepal species (*Cotyle sub-socata*, Hodg.),<sup>\*</sup> with which I have not been able to compare my specimens. We returned to Rawul Pindee by a somewhat different route, more to the north and east ; the weather was excessively hot until mid-day, when, for upwards of a week, a thunder-storm took place almost daily at noon ; always ending in a clear and brilliant afternoon, when we enjoyed magnificent views of the great Himalayan chain from the Bimbur Pass to Attock on the Indus. Near the village of

<sup>\*</sup> Gray's *Zool. Misc.* 1844, p. 82. The similarity, however, is so close between these three, that, beyond a shade of plumage, there is no appreciable distinction.

Bone we came on a party of natives sifting the soil for gold ; it is found in minute particles among dark-coloured earth on the sides of hillocks and in dried-up watercourses. Boys were employed pouring water on the soil, which, on percolating through a perforated box, was removed, and then carefully examined. The workers informed us that they scarcely found sufficient to repay their labour. On the rugged footpaths among the barren ravines are round cairns of stone similar to the "chaits" of Ladakh, and solitary graves, called "ragheers" by the natives, were also common on the side of the road and pathway, surrounded by heaps of stones, white pebbles, rags of various colours, pieces of wood, cotton, etc., the offerings of passers-by, who invariably leave some token of respect, and, following them, Young and myself had always been in the habit of adding a stone to these cairns, even as our forefathers were wont on the bleak hill-sides of old Scotland.\* "I will add a stone to your cairn," says the old Celtic proverb.

By the middle of April the mulberry was ripe, and the village trees laden with the delicious fruit, which, in point of flavour, equals the celebrated mulberry of Cashmere. Our route for some days led through fields of grain, then rapidly coming to maturity, or across ravines, where we were now and then interrupted by streams which had become swollen by the daily thunder-storms. The Persian lilac was in full bloom, an abundant spring harvest approached, and everything promised well for the industrious people who had settled down to our rule. If they would only make comparisons, they would find out that they now enjoy double the com-

\* *Curri mi clach er do cuirn*—I will add a stone to your cairn, i.e. I will do homage to your memory when you are dead.

fort, security, and independence they experienced under the sovereignty of the Sikhs.

In every wheat-field boys were employed frightening thousands of the brown-headed bunting (*Euspiza luteola*, Sparm.),\* and rose-coloured pastor (*Pastor roscus*). Great flocks of these birds were seen scouring across the country, and settling on the ears of grain. Both species commit havoc among the crops at that season, and chiefly by pushing down the ears of wheat; consequently large patches are prostrated in the same manner as when laid low by wind. The brown-headed bunting is only common during harvest, and may possibly come from Afghanistan, where it is said to be plentiful from April to autumn. The other species is generally distributed over the Punjaub at all seasons. A species of lizard is common in the ravines and arid plains of the North-western Provinces: its burrows are made on the open country, and it may be usually seen basking in the sun at their entrances. It is about a foot in length, blunt-headed, tail obtuse at the tip, and body covered with large and broad scales. The blue-throated warbler was occasionally observed. Its habits resemble the redbreasts and redstarts; possibly it might hold an intermediate position. The black-bellied lark-finch (*Pyrrhuloxia grisea*) is a common tenant of the waste and barren tracts, and as usual is seen squatting on the ground—a habit I have noticed to be common, although in a much less degree, with larks in general, especially when they anticipate danger, and before taking to wing. The European heron† was seen wading in pools; whilst the gull-billed tern (*Sterna anglica*), in

\* Cat. Birds of East Indian Company's Museum, by Dr. Horsfield, vol. ii. 487.

† Wilson's *American Ornith.* pl. 72, f. 6. I am not aware of any changes in the plumage of this great cosmopolite.

scattered numbers, flew wildly northwards, not settling anywhere, and evidently on the way to the cooler regions of Central Asia to rear its young.

Within ten miles of Rawul Pindee we found our horses waiting, and scampered across the burning plain, sorry indeed to return to the monotony of cantonment life. My keen hunting friend complained of his indifferent luck in not having procured more wild sheep. For my part, I had no cause to feel dissatisfied.



## CHAPTER IX.

Start for Cashmere and Ladakh—Incidents on the way to Murree—Black Bear, variety of—Changes of Temperature—Beauty of Scenery—Native Surgery—Discovery of a New Species of Bullfinch—Native Tyranny and Extortion—Birds—Scenery—Traces of Glacial Phenomena—Dogs—Scenery at Uri—Magnificent View—Birds—Antiquities—Deodar Cedar—Noushera—First Peep at the Happy Valley—Ornithology of the Jhelum—Serinugur—Goulab Singh—His Mode of Governing—Wretchedness of the Inhabitants—Shawl Manufactures—City Lake—Turkish Bath—Boatmen—Herouy—Chinese Jacana.

ACCOMPANIED by Young, we left Rawul Pindee on the 24th of March, and rode straight for the mountains, intending to gain the Murree Sanitarium or the lower ranges at dusk. However, our hopes were doomed not to be realised, although the morning was promising, and the fresh relays of horses at different points indicated a rapid journey. Murree is only occupied during summer ; its distance from Rawul Pindee is 36 miles. It is situate on a ridge, at an elevation of from 7500 to 8000 feet above the level of the sea, and at the time referred to was only being formed, and consequently little more than the barracks and a few cottages had been built. We breakfasted at Salgram with our two friends Morrison and Salkeld. The latter has since enrolled his name with many others in the memorable phalanx of Indian heroes who fell before the walls of Delhi. After commencing the ascent over a road by no means easy, the coming storm began to show itself by dark masses of clouds and distant thunder and

lightning. At last down it poured, and with such violence that the footpath for long distances formed the bed of torrents reaching to the knees of our horses. At last matters got desperate, and we were fairly overcome by the difficulties, which increased with a pelting hurricane, and drove us to seek shelter in two deserted huts on the mountain-side, where, with our drenched servants and baggage, we spent a cheerless night, to wake on the following morning and find matters in much the same or even worse condition than on the previous day. But there was no help for it; so, mounting our horses, we floundered up the mountain-side, and arrived at Murree at dusk. On the following morning several inches of snow lay round the hill-top, and the neighbouring ranges were covered; whilst the great Peer Pinjal chain, on the verge of the Cashmere Valley, seemed completely robed in a mantle of snow. The thermometer stood at  $42^{\circ}$  at 9 A.M. The scenery of this little mountain retreat during summer is peculiarly beautiful. All the fruit-trees grow in great luxuriance, and most vegetables and plants of the temperate zone thrive admirably. Here are collected all the military invalids for the stations on the north-west frontier of the Punjaub, and whoever can manage to escape from the heat of the plains. During a walk about the empty cottages we traced footprints of a black bear that had passed across the road, and saw several kalij pheasants and a troupe of entellus monkeys in a pine-wood close to the barrack. The black bear of the lower ranges of the Himalayas does not seem to differ in any very appreciable extent from that of the middle region; only I have noticed that the former are seldom so large, and all I have examined had the fur on the paws and snout rust-coloured instead of white. This peculiarity, however, may not be regular; at all events, the distinctions cannot be called specific. Our course for

the Jhelum River lay in a north-eastern direction, and we had to descend several thousand feet, which took nearly two days to accomplish, owing to the state of the weather and footpaths. We were struck with the change of temperature on arrival at the banks of the river, where at six P.M. the thermometer stood at 70° Fahrenheit in the shade, and mosquitoes were troublesome. The valley of the Jhelum at the ford presented a very wild and imposing appearance. The great river, swollen by the late rains, rolled in a mighty flood down an enormous ravine, the sides of which rose up to several thousand feet, forming long "horsebacks," and clothed with grass or patches of oak and forest trees, whilst here and there a little flat-roofed native house, hidden among the vegetation, with its terraced fields, indicated the presence of man. In twenty-four hours we had descended from an arctic temperature to an almost tropical, and through what delightful scenery! None but those who have wandered over mountains like the Himalayas can form an idea of the beauty and magnificence of the region we are now considering. To the naturalist the attractions gather so fast that he can barely make himself acquainted with the most familiar objects. I noticed the wandering pie, the chimney swallow, and Alpine swift; two species of a beautiful hyacinth, blue and white, and a tiger lily, were in flower. The long-leaved pine, the rough and smooth-leaved oak and wild barberry, were the common trees and shrubs. We were escorted for the greater part of the day's march by a Sepoy from the last halting-place. He had been in Rungeet Singh's army, and fought against the English in the Sutluj campaign. He spoke highly of the bravery of the Europeans, but laughed at the native troops, unless backed up by the white men. The river was running strong and rapid, but by means of powerful oars in

the bow and stern of the flat-bottomed boat, we managed to gain the opposite side without much difficulty. The course of the Jhelum in this district forms nearly a triangle; proceeding westwards in the first instance to Mazufurabad, it then suddenly nearly doubles on itself, and runs in a southerly direction. Our route lay across the triangle thus formed in a north-eastern course. The Jhelum divides the British from the territory of the Cashmere ruler, whose little mud forts are seen at almost every little village on the way. The farmers were loud in their complaints of the tyranny of the Maharajah Goulab Singh, and kept continually extolling the rule of the English on the other side of the river; but when we advised them to go across and squat on the opposite hill-sides, they said they could not endure to leave the old huts and homes of their fathers. At one of the hamlets on the way I was asked to give my advice with reference to a broken arm, and was struck with the good native surgery, as far as apparatus went, which consisted of a hollow piece of ash-bark, lined with fine moss, and placed one on each side of the limb. It had been put on fresh from the tree, and became hard after having been fitted to the inequalities of the arm. A more effectual splint could not have been adjusted. We passed a night at the little fort of Dunna and on the following morning, in pelting rain, pursued our course down ravines and over ridges. By the side of a little graveyard we observed a cypress very like that of Europe; the fir, spruce, oaks, poplar, ash, elm, etc., covered sheltered portions of the ridges and along the lower parts of the valleys. We saw a barking-deer, and in a little ash-wood I shot the beautiful orange-coloured bullfinch (*Pyrrhula aurantiaca*), which, until then, had been quite unknown to naturalists. The male is brilliant orange, and very different from the red-headed bullfinch mentioned with the birds of

Dugshai. This valuable addition to the ornithology of the Himalayas has been since figured by Mr. Gould in his magnificent work on the *Birds of Asia*.

A tulip, with white petals tinged with rose-colour, is very common all over the ranges at this season, and in damp situations the slate-coloured primrose, whilst ivy clung fast to the old pine-trees, of which more than three species were observed. On gaining the top of a ridge, we espied the little fort of Chácar on another opposite, and after a very toilsome descent across a broad valley, and a rough clamber up-hill, we got to the little stronghold at dusk, to find the commandant, a gray-bearded Sikh, waiting our arrival in the verandah of his house, and, as usual, surrounded by his minions accoutred with sword and shield.

After the usual Oriental preliminary forms of recognition, we were told that the Maharajah's order was, that every European visiting his country was to be considered his guest, and on no account to be allowed to pay for provisions. We soon found, however, that this munificence was at the expense of the poor villagers, for our next-door neighbour exclaimed from his roof-top that he had been ordered to supply us with fowls ; another, that eggs had been demanded from him ; and a third was to furnish us with wood. In vain we protested and offered to pay for everything ; but the Sikh soldier who catered for us would not hear of such an arrangement ; however, on our departure, he was not above receiving any amount of "backshesh" on his own account. What could not be done in justice and in public, we accomplished unknown to these myrmidons, so that the natives were no losers by our presence.

The tyranny of the late Goulab Singh was then beyond belief ; proofs of which were seen everywhere in the deserted

villages and ruined houses on our route. Extortion was the order of the day ; from the ruler down to his sepoy, all aimed at robbing the cultivator of the soil of whatever they could lay their hands on. Nor are matters much changed for the better since his death. We sat long in the verandah of a little hut waiting the arrival of our baggage ; night fell, and still no appearance of the servants and porters ; at last a torch appeared, and coolie after coolie arrived in a long line toiling under the weight of their burdens. A few minutes before we had indulged in very strong language with reference to their delay ; but when we saw them bending under the large leather baskets our hearts failed us, and, instead of a reprimand, we praised them for their hard day's work. Poor simple souls ! a little firewood and a dry corner in a shed close by were all they required, and in a few minutes they were singing over their little fires, and busily employed cooking their wheaten cakes (*chupattees*). Each coolie is provided with a walking-pole, and a T-shaped piece of wood, on the horizontal part of which he rests his load without setting it down. With the pole they guide their footsteps over the dangerous and difficult parts. Their dress is composed of home-spun gray flannel, with grass shoes, such as are generally worn by the poor people of the western ranges. The coolie of the hills is a stout and robust fellow, very different in appearance from the listless and apathetic native of the valley of Cashmere.

We were astonished to observe numbers of open graves, and on inquiry found that it is the custom merely to cover the top of the grave with wood and earth, so that after a time the former decays, and the scant covering falls down on the coffin.

On the 2d of April we continued our route towards the

Jhelum by a narrow footpath which leads down the Chacar Hill in a N.E. direction to the river, then turns suddenly eastward along the left bank on to the valley of Cashmere. On the march to Hutier (about seven miles) we shot a few chukore and black partridges; the latter were heard calling in every field, even in the immediate vicinity of the houses. The black-throated bunting (*Emberiza cioides*) is common on the banks of the river; in habits it bears a great resemblance to the yellow bunting, and also resembles it both in figure and call. Allied to this species is the gray-capped bunting (*E. stewarti*, Blyth); its throat is black likewise, but the male has a gray head, a black streak through the eye, and a rufous band across the chest. We had not time to examine the geology of this interesting day's journey. The strata, however, seemed now to be composed entirely of mica-schist and syenitic granite, with a few boulders of the latter strewn along the bed of the river.

The scenery was truly beautiful, and could scarcely be seen to greater advantage. Every turn of the river disclosed a fresh picture; on the hill-sides overhead were green fields of spring-wheat—the varied shades produced by the trees of the jungle—among others, the apricot was seen in full blossom—the roaring river below; while on the furthest mountain-tops the snow still lingered. The valley of the Jhelum here varies in breadth; in some situations it is fully two miles, but the greatest breadth of the stream is not much more than a stone-throw. Landslips are common along its banks, and not a few are of large extent; masses of alluvium form plateaus, from 100 to 250 feet above the level of the river; these are cultivated and turned into terrace-fields, which rise like the seats of an amphitheatre. There is no difficulty in irrigating the fields from the hill-sides, which abound with

streams where the wearied traveller can refresh himself by a grateful bathe—of all remedies the most sovereign to a frame overheated and taxed by hard walking.

The native dog of this district has a great resemblance to the pointer, and doubtless was introduced from India. Mr. Vigne\* makes a similar remark with reference to the dogs of the Rajawur district, south of the valley of Cashmere, where a formidable breed is also found, having the external appearances of the shepherd's dog, but much larger. A closely-allied form, not differing in any way from the Scotch collie, is common all over the cultivated regions of the Western Himalayas, and even westward to the sources of the Oxus, as observed by Lieutenant Wood. This uniformity is in favour of the view that the shepherd's dog forms almost a permanent race, which may have been one of the original varieties.

The gray wood-shrike (*Tephrodornis pondiceriana*) is a common tenant about the farm-houses. It resembles the Indian gray shrike, but is very much smaller.

Uri Fort is placed on a projection composed of vast accumulations of alluvium and gravel, which must have either been deposited by the Jhelum in that situation during far back geological periods or the result of ancient glaciers. Here the Jhelum bursts through a barrier of primary rocks with considerable violence, and rapidly widens out into a broad and more placid river.

The scenery around this is exceedingly beautiful; either by following the river onwards through the narrow boisterous course, with its banks clad with a variety of soft and hard wood trees, towards Cashmere, or in the direction of the stream, across hill-sides covered with long grass and clusters of pine.

\* Vigne's *Travels in Cashmere*, vol. i. p. 231.



The banks of the influent rivulets are hidden by profusion of apricot, barberry, mulberry, wood-apple, and other fruit-trees. Large boulders of granite strew the bottoms of the valleys, some carried down by landslips, but others evidently deposited by either fluvial or glacial forces far exceeding in extent and intensity anything of the sort now going on.

As usual, the walnut-tree shades every hamlet. The fruit is much used by the natives ; the wild olive and pomegranate are also common.

Indian corn, wheat, cucumbers, melons, etc., are cultivated. The first is reaped in autumn, when the black bears and pigs repair at night and commit great havoc in the fields and gardens, so as to necessitate watchmen sitting on raised platforms in the middle of the fields and keeping up a constant noise by screaming and beating drums. It is, however, seldom, with every care, that these unwelcome intruders are kept off, for in spite of every means had recourse to, both bears and pigs manage to destroy whole fields of Indian corn. During the summer, when insect life is in full vigour, the noise made by crickets and their allies, especially at night, is almost deafening. A constant wailing cry, possibly of one of the owls or night-jars, was heard at dusk. So persistent was the doleful *wa-wa*, that I do not think we often missed hearing the sound at night throughout the journey to Cashmere.

Proceeding from Uri to the next halting-place, Noushera, the traveller passes through as beautiful scenery as can be seen anywhere. Let him choose any season of the year, there can be only one feeling uppermost, and that is of wonder and astonishment at the grandeur and surpassing beauty around him. Before the river had appeared to him a mighty flood, moving steadily onwards through a broad valley ; now—

“Between two meeting hills it bursts away  
Where rocks and woods o’erhang the turbid stream ;  
There, gathering triple force, rapid and deep,  
It boils, and wheels, and foams, and thunders through.”

We descend from the alluvial plateau and cross a stream, mount the opposite bank, and are soon lost among the profusion of tree and shrub which clothe the mountains to the river’s brink. Pursuing the little footpath along the left bank, now wandering through forests of the noble deodar,\* anon under the leaves of the wild cherry, the mulberry, wood-apple, or chestnut ; whilst mountain-wards, like a huge wall, the schistose rocks rise hundreds of feet above him. If it is spring he will mark the beautiful “forget-me-not” on the pathway, or the gaudy tiger-lily, with its broad, smooth, sagittate leaves. In the gaps of the forest the eye wanders up many a solitary pine-clad glen, where the snow lags long in sheltered portions. Above the wail of the forest the roar of the troubled waters deadens almost every other sound, save the shrill pipe of the blue water-thrush, or the chirp of the chestnut bellied redstart, as they sport among the rocks. The wild rose is seen mingling its beautiful flowers with those of the pomegranate, whilst the ivy and many other graceful creepers twine around the trees and adorn the bosky cover. In such situations, among the mulberry-trees laden with their luscious fruit, you may come on a black bear feeding. He will not tarry when he sees man, but if suddenly surprised and hard pressed, often shows fight, and attempts to hug his victim by rearing on his hind legs, offering at the same time a good aim to the cool-headed sportsman. The right bank of the river rises upwards into wood-

\* “The deodar has not been seen east of Nepal.” By some the old familiar cedar of Lebanon is considered an unusual variety of the Himalayan deodar. (See Hooker’s *Him. Journal*.)

less mountains, bare or covered with grass. Nearly half-way between Uri and Noushera, in a wild-looking jungle, surrounded by pine, and nearly overgrown with rank vegetation and weeds, are the remains of one of the ancient Cashmere temples. It is built of the green basalt of the Peer Pinjal range. Like the generality of the old ruined temples in the valley, its architecture is said to be Gothic, with gables having "pediments of high pitch and trefoil arches," the whole decidedly of Hindoo character, in imitation of the later Roman buildings. This would assign them a period beginning with the Parthian conquest of Syria, between 250 B.C. and 850 A.D.\* There is another within a few miles of Noushera, if anything more perfect, and built of granite. Many of the cedars have been cut down and floated to the plains of the Punjab. One feels sorry at witnessing the fall of a majestic tree, whose growth has extended perhaps over half-a-dozen centuries ; and never did I feel that to a greater extent than on my return from Cashmere, where some of the noblest monarchs of the Uri glen were lying prostrate on the river's bank. Before Goulab Singh discovered the value of his cedar-forests, it was customary for the charcoal-burners to set fire to the trunks, and hollow out large caverns, which generally ended in the death of the tree and waste of much valuable wood. During this day's journey, we often met gangs of pilgrims proceeding to or from the sacred shrines in Cashmere. We came on a group of gipsy-looking men and women, who informed us they had been travelling constantly for six months from Agmeer, in Central India, and were on their way to the shrine of Umernath, among the Northern Cashmere ranges. A few of the young women were exceedingly beautiful, and

\* "Essay on the Hindu History of Kashmir."—*Trans. of Asiatic Society*, vol. xv. by H. H. Wilson, A.M., Professor of Sanscrit in the University of Oxford.

the light sunburnt faces and dark flashing eyes of all of them were very characteristic of the race in general.

The hamlet and ruined fort at Noushera is situated on a flat almost level with the Jhelum, which here sweeps downwards at great force. Gable-roofed houses now begin to take the place of the little flat-roofed hovels, and give an almost English appearance to the Cashmere landscape.

At Noushera I met with the gray wagtail (*Motacilla boarula*) for the first time. The leaden-ash redstart is likewise common. I procured also several specimens of the yellow-billed jay (*Calocitta flavirostris*), which differs from the red-billed species, mentioned before, and which is plentiful in the lesser ranges towards Murree, by the duller cast of plumage, the bright yellow bill, and the white on the hind-head being narrower, and having a broad band of black below it. I shot my specimens in spring, so there could be no question as to their being adult birds. Perhaps, however, the yellow-billed jay has scarcely a claim to be considered other than a local variety of the Himalayan bird. The Siskin (*Carduelis spinoides*) is common in the forest, and generally seen in flocks. The cuckoo we heard daily at that season. It is common in every wood.

Associated with the black-crested tit (*Parus melanolophus*, Vigors) I shot the pretty little red-headed species (*P. erythrocephalus*). It is a little larger than the golden-crested wren. There is a genus of warblers mostly common to the Himalayas, to which the name *Abrornis* has been given by the great Himalayan ornithologist Mr. Hodgson, who has described several species, of which one or two are common in the woods and forests about Cashmere; but from the very close connection of several recorded species, I have not been able to identify my specimens.

Holding a north-east course along the bank of the river, through forests of deodar, or woods of mulberry and fruit-trees, together with the hazel-like fothergille (*Fothergilla involucrata*), we entered a little valley surrounded by mountains and pine-forests, with beautiful fields of green turf; gable-roofed hamlets, built of logs and thatched with straw, were hid among a profusion of arboreal vegetation. At the northern extremity the Jhelum was seen gliding placidly round a corner towards a gap in the west, where it suddenly begins its furious downward course to Uri—a distance of fully sixteen miles. Shoals and little islets of alluvium have been formed at the above point, and possibly most of the deposits of this little nook have been obtained from the river during former conditions. Although it rained constantly during our stay at Noushera, we could not help admiring this little corner of Cashmere; it was as it were a prelude to the splendid panorama which burst on our view on the following morning, when, after crossing the valley and mounting the summit of the little pass above Baramala, we had the first glimpse of the Vale of Cashmere. There it lay in all its beauty, with the Jhelum twisting through its grassy glades, the Wulur Lake in the distance, and the great Pinjal ranges, covered with snow, surrounding the valley on all sides. The lofty Haramuk, greatest amongst the rock-giants, raised its granite top 13,400 feet above the level of the sea. The town of Baramala is placed on the right bank of the river, and occupies the most west point of the valley. It is composed of a few hundred log-built houses, its streets are filthy beyond description, and the poor half-clad natives, in their long robes and turbans, looked pictures of human misery in that cold, wet, April morn. The weather was too unsettled and rainy to allow us to proceed to the capital overland, we conse-

quently embarked in covered boats, and were pulled up the river by natives. The banks of the Jhelum are not above a few feet in height anywhere in its course through the valley of Cashmere, and in many places almost level with the surrounding country, which during the inundation is overflowed in many places. The grass was just appearing in the glades, where herds of lean, half-starved sheep, horses, and cattle were pasturing. The fine bald-headed eagle was often seen on the banks, and formed a prominent ornament in the landscape. We strolled gun in hand along the bank, and by the sides of fens and marshes where the last of the winter visitors yet tarried, such as flocks of mallard, teal, red-headed pochards, and curlews. A large fox, named by the natives "shawul," to distinguish it from the red-mountain fox (*V. montanus*), was common among the ravines, and on the kirawas or alluvial flats. The jackal seemed also a larger variety than that of the plains of the Punjab. A male we shot measured 3 feet 6 inches from snout to tail. The native tradition that the valley is the bed of an ancient lake receives corroboration from its geological features. Lines, like the parallel roads of Glen Roy, but not so well defined, are seen in various situations on the sides of the ranges around the basin. The Mussulman tradition has it that Solomon drained the valley by directing a Jin, called Kashuf, to remove the barrier at Baramala. Time would not allow of careful observations on the intricate study which refers to this portion of the history of the valley. It appears to us, however, that if it has ever been a mountain-lake, the barrier had been originally occasioned by glaciers damming up the current at the western end of the basin.

The capital, Serinuggur, is, according to Jacquemont, 5246 feet above the level of the sea. It is built on the river, over which are thrown several wooden bridges. Direct supplies

are for the most part conveyed by boats. As the small gondolas glided slowly towards the entrance to this little Venice of Asia, our attention was directed to two human skeletons suspended in cages on the river's bank ; these, we were informed, were criminals that had been executed some years before, and were left on these gibbets as a warning to all malefactors. We were not altogether unprepared for such examples of Goulab Singh's mode of rule, having read of his horrible deeds in the days when he was weaving the meshes of the net that ended in capturing Cashmere. One cannot without a shudder recollect that it was he who, at Poonch, under the slopes of the southern Pinjal, had two prisoners flayed alive in his presence, and, not content with that, sent for his son (now the present ruler) in order that he might "take an example" from his father in the art of governing. Such was the ruler of this valley when I had the pleasure of visiting it. A striking difference is worth noticing with reference to the natives of the capital—that is, the healthy and sunburnt faces of the boat people and the pale and bloodless aspects of the men and women who crowd the banks of the river. Many of the fair sex are extremely beautiful, but filth, poverty, and tyranny have made their impressions on the Cashmeree, who for centuries has been subject to tyrannical governments.

With so noble a river, and the natural advantages of situation, it might be supposed that few cities have better opportunities of preserving cleanliness and comfort ; but, like all Oriental towns, it vies with the filthiest. Let travellers who have sensitive olfactory organs beware of the streets of Cashmere, and content themselves with admiring all its towns from a respectful distance. We had excellent quarters assigned us, by order of the Maharajah, on the right bank of

the river, above the city. I will never forget the morning after our arrival ; it had rained almost uninterruptedly, so that, hitherto, everything had been seen to a disadvantage ; but now the weather settled, and I was awoke at an early hour by the song of the sky-lark, the mellow note of the bulbul\* (*Pycnonotus leucogenys*), and the twitter of the chimney-swallow. It was a lovely spring morning, and so like home, that I could scarcely persuade myself I was not in some beautiful nook in Old England.

The palace or shergur is situate on the left bank below the first log-bridge. It wears a very dungeon-like appearance, which the shining cupola built by the Maharajah Goulab Singh somewhat relieved ; withal, the royal domain might with truth have been considered to be in a very shaky condition ; its crumbling walls were the abodes of myriads of jackdaws, and its interior only a shade cleaner than the filthy domains around. According to the usual custom, we paid a series of visits to the shawl-manufactories, with which we were much disappointed, more especially for having always understood that the vast numbers of Cashmere shawls imported had been manufactured there, until we inspected every warehouse in the place, when it became clear that the numbers to be seen in London and Paris could never have been made in the shops of Serinuggur—not even in a century according to the means then prosecuted. One magnificent shawl was being made for the Empress of the French in Mookh du Shah's manufactory, and, I believe, at the outside

\* The red-vented bulbul, the nightingale of Eastern poetry, is not found in the Valley. Hooker, in the Himalayan journals, mentions hearing the song of the nightingale in Sikkim, but I can find no record of the *Luscinia philomela* having been met with by ornithologists on the Himalaya ranges nor British India ; possibly the song of the *Copsychus saularis* may have been mistaken for that of the other.



not more than ten of any value were in hand from one end of the city to the other. It is said that the water of the lake gives a softness to the Cashmere shawls which cannot be obtained elsewhere. This may be doubted, as I have been given to understand that those made in the looms at Amritser in the Punjaub equal any from the Valley.

One evening, on our return from the lake, the report of a cannon from the palace startled us, and raised a thousand echoes along the margin of the still waters. It was a royal salute of one gun for the heir-apparent, who had just returned from visiting his sire at Jamoo—one of the frontier forts. It is a beautiful sight to see the boats, propelled by little hand-paddles, shooting along the river or up the canal and across the city lake, the oarmen keeping time to a lively chaunt which they sing, sometimes with great pathos and some artistic skill. The inundation takes place with the melting of the snow in April and May, when the banks are overflowed in many places.

There are several species of fish in the river, the most common being a sort of carp usually called the Himalayan trout. It has two long string-like appendages projecting on each side of the mouth. Young caught several with a hook baited with dough,—the largest did not exceed 3 lbs. in weight. The flesh is soft, very pale, and almost tasteless.

The Turkish bath is in repute among the better classes; but all I saw were so excessively filthy, and had attendants so dirty, that we cut short our visits after the first ablution.

A Cashmere boatman would consider his establishment incomplete without an Afghan lark (*Melanocorypha torquata*). This bird is said to frequent the Valley in winter. The sweet notes of these songsters issuing from the boats as they pass up and down the river were very enchanting. The common heron is plentiful, and a heronry is preserved in the Shalimar

gardens. Their plumes go to deck the imperial head-dress. Towards sunset the rough cricket-like chirpings of thousands of a species of hedge-warblers were heard all over the lake ; and so loud as almost to drown every other sound.

The beautiful pheasant-like bird seen squatting on the broad leaves of the lotus (*Nelumbium speciosum*) and marsh marigold (*Caltha palustris*) is the Chinese jacana (*Porra sinensis*). Its flight is not strong, and composed of many flaps ; the call is rough, like that of the water-hen. The curved tail-feathers, the brilliant yellow patch on the hind part of the neck, shining brown of the back, white wings, more or less tinged with black, will at once serve to distinguish it.

## CHAPTER X.

Excursion to the Northern Pinjal—Ancient Temples—Earthquakes—Geology—Bear and Deer Shooting—Adaptation of Sight to Long Distances—Snow Pheasants—The Last of a Royal Line—The Isabella or Brown Himalayan Bear—Shooting—Shikaree turns an *Æsthetic*—Splendid View—Scenery of the Valleys—Cashmere Stag—Large Deer in general—Hunting Bears and Deer—Beauty and Grandeur of the Northern Pinjal—Climate of the Ranges—Judging Distances—Pilgam, its Neighbourhood—Rapid Changes of Climate and Vegetation—European Water-ousel—Flora and Fauna—Return to the Valley—Silkworm—Sylvan Scenery—Birds—Ruins of Martund Islamabad—Atsibul and its Beauties—European Plants—Southern Pinjal—Native Misery—Scenery—The Red Weasel—Ringdove—Thunderstorm.

WE left Serinuggur on the 14th of April for the purpose of exploring the valleys and ranges on the north side, and hunting large game. Our party was now increased by the addition of our friend Captain Halkett, who had preceded us to Cashmere. We tracked up the river to the village of Pampur, celebrated for the superior quality of its saffron. The banks of the Jhelum were fringed with willows, walnut, and chunars. These and the long-withdrawing meadows looked beautiful exceedingly. We visited the pretty little temple at Pandreton—another of the ancient Hindoo ruins similar to those seen between Uri and Noushera. It is situated in a pond; the building is a square chapel, with “trefoil arches,” and made of the neighbouring mountain limestone. There is a gigantic sitting figure cut in the same rock on the hill-side,

and a little farther on an enormous pillar, evidently the fragment of an idol. The two last are also possibly of Hindoo origin, and were overthrown mayhap by earthquakes,\* or the Mahomedan invaders. I recommend the traveller to mount the grass-clad kirawah, behind Pampur, any clear day, and he will not only have a magnificent view, but by running his eye along the sides of the range northwards, he will observe the old water-lines already noticed; nowhere are the latter more distinct than on the faces of the limestone ridges in this part of the valley. It is while calmly viewing the vast amphitheatre around him that the geologist will realise the magnitude of the force which upheaved the great Himalayan chain. The basin of the primeval lake may have been originally a fissure, scooped out afterwards by glaciers, which at some far-back period were more extensive than at present, as their moraines testify. These may be seen at almost all the debouches of the valleys which enter Cashmere.

The mountains forming the northern barrier of the valley belong chiefly to the carboniferous series, and contain abundance of molluscs and other marine animals, but beds belonging to older formations, as well as mesozoic rocks, are met with on the surrounding ranges,† and nummulitic limestone on the slopes of the Peer Pinjal.

On the 15th of April we marched northwards from Pampur, through its saffron-beds, which at that season were covered with the wild white and red tulips, the saffron-plants not having appeared above ground; then, directing our footsteps towards

\* Cashmere has always been subject to severe earthquakes. It is on that account the houses are built of wood.

† See interesting papers on this subject by Captain Godwin Austen and Mr. Davidson in the *Proc. of the Geological Society of London* for February 1866.

the mountains, we arrived at the little village of Lidur, situated at the foot of a long straggling limestone ridge covered with wood and bush. There is a small tank close to the village containing Himalayan trout, which I attempted to capture, but had to desist on account of having been informed that the animals were sacred, and if I killed one I should be certain to incur the displeasure of some departed saint.

The thermometer stood at  $76^{\circ}$  in our tent during the day at Pampur. We found, however, on the hill-side above, that the temperature that night was very different, and made us glad to sleep under blankets. Before daybreak each of our party, accompanied by his shiekaree, struck off in divers directions. I followed up a wooded spur, with a valley on each side, and had not gone far before the loud bellowing of the Cashmere stags was heard in various parts of the thick cover, and a herd of eight was seen in a jungle on the opposite ridge. To cut them off was our only chance; so, on hands and knees I scrambled through tangled bush and brake for upwards of an hour, when, most unexpectedly, I came upon a hind, and delivered the contents of my rifle on her at ten yards. Although desperately wounded, I could not discover the animal from the extreme density of the underwood and difficulty of finding our way through it. On gaining the top of the ridge a brown bear was seen in a valley some distance off, but I was too much disappointed at my failure to go in pursuit, and returning to the tent, found Halkett exulting over a very large bear he had killed in the neighbourhood. The animal measured  $7\frac{1}{2}$  feet in length, height 3 feet 5 inches; around the chest  $58\frac{1}{2}$  inches; the thickest part of the fore-legs was 24 inches, and the thigh 37 inches in circumference. I mention the dimensions of this individual, as they are the largest of several hundred I have examined. One afternoon,

on gaining the grassy top of a very steep mountain, I descried a black bear feeding very intently, and as the wind was favourable, there was no difficulty in stealing within thirty yards. On firing the contents of my first barrel into his body, he gave a loud grunt, and, unconscious of the direction from which the shot came, cantered to within a few yards of me, when a second bullet through his loins brought him up, and he stood hesitating for a moment; then coiling himself into a ball, he rolled down the hill-side, bounding from one prominence to another like a huge cricket-ball, until brought to a stand-still on a flat, on which he unrolled himself, and running to the next declivity, rolled to the bottom, when he took to his legs and disappeared from our view in the dense cover. His downward course was marked with blood, but night came on, and rendered farther pursuit perfectly useless. I was not sorry to lose this bear at the onset of my shooting, as I learned the truth of experience and what an old Himalayan shickaree had told me, that a bear will carry away as many bullets as you can send into his hinder quarters, but one behind the shoulder, in the forehead, or breast, will be certain to drop him. The above is a favourite proceeding with the black bear if suddenly frightened, or when he finds himself on a steep mountain and at a great distance from jungle or cover.

On the 18th of April we raised our camp, and proceeded eastward over the mountain of Wunster Wun, where we had been shooting for the two previous days, into a beautiful little valley, about three miles long by a mile or so in breadth. A river, fed by numerous rills from the high ranges on each side, flowed down the middle, and, dividing into many branches, served to irrigate the rice-fields. It is wonderful how the eye adapts itself to seeing objects at long distances. My shickaree would seat himself on a hill-side,

and with his hands on each side of his head, so as to concentrate the rays of vision, remain motionless, intently scanning every portion of the distant valley or mountain. At last he would point out a small object, which the telescope showed to be a stag or bear. Having satisfied ourselves as to the direction of the wind and the general demeanour of the animal, whether feeding intently in one direction or nibbling as it walked along, we then commenced our stalk. The beginner must trust to the native shickaree and be guided by him, and if at all expert, he will bring his master within 20 yards of the game. Amongst our men was a well-known hunter called Ebhul Khan, a Khyberee from the famous pass of that name near Peshawur. He had spent many days among the Cashmere mountains, and knew almost every corner in the Northern Pinjal. From age and experience he claimed the consideration and respect of his comrades, who always allowed him to choose the most likely beats. It was surprising how this man outshone us all in finding game. His eagle eye scanned every spot within its range ; and often when we were perplexed as to the nature of some minute object a long way off, Ebhul Khan settled the matter at once. This faculty is only to be gained by great experience ; but let the young aspirant remember that there is nothing intuitive in it, and that, by dint of patience, perseverance, and practice, he may, with an original good pair of eyes, find all his game for himself. In the woods and jungles of the valley I saw several of the new species of bullfinch discovered at Chacar. Halkett fired at a fine leopard, but the ball just grazed the animal's back. Although nowhere common, the leopard is not rare on the Cashmere mountains, and preys chiefly on musk-deer, sheep, and dogs. Our friend was fortunate in killing another brown bear.

On a range, and close to the melting snow, we came on several flocks of the great snow-pheasant, known to the Cashmerees by the names *gor-ka-gu*, and *kubuk deri*. It is also called "lepie" and "jer monal" in other districts westward. This species seems to frequent the high ranges of Afghanistan, and suitable situations all over the great Himalayan chain. There are three allied species, one of which is possibly only a local variety (*Tetraogallus tibetanus*); the other two are decidedly distinct. One of the latter is said to frequent the Ladakh mountains; it is smaller than the bird we are now describing, and has a band on the front of the neck like the chuckore. The great snow-pheasant delights in high altitudes, and may be said to be partial to the upper region, from whence it is only driven by the rigours of winter. Amidst the dreary desolation of these arctic heights its plaintive whistle is often the only symptom of animated nature. The ash colour of the plumage is so like surrounding objects that I have often found great difficulty in discovering individuals. The call, however, is loud and prolonged, and may serve to fix the position of a flock which otherwise would remain unnoticed. Commencing with a few short calls, the notes get rapidly prolonged, much in these words "*whōō, wīt whīt whīt, wīt wīt wēēīt wēēīt wēē*," continued at intervals of a few minutes. In hunting the gorkagu the best way is to approach a flock from below, and fire the first shot when they are on the ground, when the chances are, that all will fly downwards, as they almost invariably do when near the mountain's top. In general appearance and gait on the ground, this bird has a resemblance to a large gray goose. Tender leaves and stalks of the alpine primroses, fresh shoots of grass, and other plants, constitute the favourite food of this species. Its flesh is not well-flavoured. I have often seen



flocks of snow-pheasants get very much excited on the approach of the lammergeyer, or any other large rapacious bird, and run from one part of the mountain to another, evidently in great fear. Doubtless the golden and imperial eagles often pounce on the young, but they do not seem to attack the adult. The plumage of the snow-pheasants differs considerably in summer and winter, and there is likewise some individual disproportion as to size, both of which are worthy of attention. An adult male is about 29 inches in length, and the breadth from tip to tip of wings about 40 inches; weight  $8\frac{1}{2}$  to  $7\frac{1}{2}$  lbs. The legs are armed with short blunt spurs.

It is particularly refreshing, after a few hours spent among the cold and snow of the higher regions, to descend to the region of verdure, among the fragrant wild thyme which grows abundantly on these mountains, along with the iris, crocus, and tiger-lily. After a day's hard work on the mountain-side, searching for *lepica*, we were returning homewards through a little belt of birch, when I came on a musk-deer, and shot the little creature as it stood gazing in astonishment at my sudden appearance. The female is of little value, except for its skin, as the flesh is dry and tasteless. During our stay in the little valley of Trahal, we had a visit from Mirza Shah, ex-rajah of Iscardo, one of Goulab Singh's state prisoners: he had been exiled for twelve years, and was living in destitution in a small village close by. The poor fellow seemed completely borne down by sorrow, although only thirty years of age. He was tall, slender, and handsome, and wore a large white turban and blue mantle. Through an interpreter he informed us of the unjust way in which his country was taken from him by Goulab Singh, but his dull eye seemed to brighten up when he recounted the friendly

relations that used to subsist between his father and the British government, ending with the Cashmerce's prayer, "that the day might not be distant when the Feringee would rule over valley, and his mountain home restored to him." He looked, however, as if he was not likely to live to see that day. Grateful for our sympathies, he took his way, and soon reappeared with a piece of rock-crystal, which we feigned to think was valuable; and in return Halkett made him a present of a penknife, which he looked on as a courtly gift. How are the mighty fallen! He was the last one of the royal race of Gylfos, who had lorded over Ladakh and Tibet for several centuries.

The isabella, or brown bear of the Himalaya, is an exceedingly stupid and unsuspicious animal in districts where it has not been disturbed. My first encounter with one well exemplifies what may be considered a common occurrence with those who have hunted it in the more secluded valleys. An individual was discovered feeding on the side of a very steep ridge, which was intersected by a succession of deep furrows, so that when the bear was feeding across the declivity it was constantly rising over these inequalities, and dipping into the intervening hollows. The result to us who were stalking the animal was, that we had to wait until it had crossed one ridge before we attempted to pass over another; and so on, until we arrived at the last, when, to my astonishment, on peeping over the eminence I descried bruin's ears within an arm's length, and heard him nibbling and blowing on the grass; so, springing on my feet, I discharged the contents of two barrels in his body. However, he regained his footing, rushed down the slope, and disappeared in the dense jungle at the base. No time was lost in following up his trail, which was evident enough from great splashes

of blood, and I had no sooner gained the cover, when, with a loud snort, he advanced towards me, rearing on his hind legs, when I planted another ball in his chest; then, with a yell, he turned, and entering the jungle, was soon lost to view. We traced his footprints from one place to another, through tangled bush, until night came on and compelled us to desist. The following morning saw me up before the sun, and on my way towards the scene, with villagers to assist in beating the bush. After several hours' fruitless search, the animal was found lying stiff and dead under a tree. He was wounded in five different places. We removed the skin, but the shickaree was not content until he came into possession of the gall-bladder likewise, the contents of which are much prized as medicine by the hill people. He, moreover, was careful to remove the liver, and assured me that the number of lobes indicated the age of the individual. This piece of anatomical information I had subsequently cause to doubt, as all the adult specimens I examined had exactly eight lobes.

It was fortunate our antagonist was the brown instead of the black bear, inasmuch as had we been brought to close quarters it is highly probable he would have attempted an attack on us.

On the following day we struck our little camp, and moved eastward over a pass covered with thick beds of snow, and had not proceeded any great distance before a very heavy snow-storm came on, in the middle of which we were surprised by a courier appearing with our "home letters," kindly forwarded to us by the British resident at Serinuggur, Major M'Gregor. Among the items of overland news was recorded the death of the poet who has sung so sweetly of the scenes we were visiting. By the time the valley was reached, the snow, which had fallen thickly on the mountain, now ac-

cumulated to even several inches, and the little village of Sipoor looked on the 24th of April as if it had been mid-winter ; and what appeared strange, among the cold and snow all the apricot trees were in full bloom ! The thermometer stood at 40° in a neighbouring hamlet, where, among cattle and cackling hens, we spent a sleepless night from the attacks of legions of “cimex” and “pulex,” both of which abound in the native dwellings of Cashmere.

One beautiful morning, shortly after sunrise, as my shickaree was seated beside me on a mountain-top, from which a magnificent view of the valley was visible, we had been intently scanning the hill-sides for game, when, suddenly turning towards me, and pointing downwards, he exclaimed, “What could have induced the English to have given that fine valley to Goulab Singh ?” He knew the story of how it was purchased by the present ruler at the termination of the Sutluj campaign even better than I did ; but the sudden ebullition of affectionate regard for his native land overcame him, and seeing it to such advantage on that bright spring morning, the simple shickaree turned an æsthetic ; and no wonder, for before or since I never beheld a lovelier scene : there lay the fine broad valley, far, far down, the Jhelum, twisting through its rich fields covered with grass, and irrigated by numberless mountain torrents,—the rising sun just gilding the tops of its snow-clad barriers, and the smoke rising from hundreds of villages and hamlets, half-hid among profusion of tree and jungle. Verily, well might have the poet sang,—“If there be an Elysium on earth it is this—it is this.”

From the Trahal we crossed a range, and entered the Duchinpara, a magnificent offshoot from the Cashmere valley, where it opens out into a broad plain, several miles in breadth, then gradually narrowing and bursting through the Northern Pin-

jal for upwards of thirty miles, ends among the high ranges on the frontiers of Little Tibet, where spring the infant-rills of its beautiful Lidur—a fine mountain torrent, which, gathering strength as it runs along the valley, becomes nearly as large as the Jhelum itself at Bij Bedra, where the two unite.

The mountains of the Duchinpara are chiefly composed of limestone, and, for the first fifteen or twenty miles, slope gradually into the valley; their sides are clad with dense pine forests, alternating with grassy glades, whilst the bottom and banks of the Lidur are covered with dense jungle, diversified by little villages, hamlets, fields, and groves of apple, walnut, &c. In the secluded depths of its forest the Cashmere stag finds a safe retreat, and the musk-deer, although getting much reduced in numbers, is occasionally met with. A few of the strange goat-antelopes (*Capricornis bubalina*) frequent the more secluded parts, while on the grassy openings round the limits of forest, a brown or black bear may be found. Had the game of the Duchinpara been preserved with even moderate care, there is no place in the world where the sportsman might pursue his pastime with more advantage; but for years, and at all seasons, natives and Europeans have been constantly at the work of extermination, and before long the north “glades and glooms” will be without a single denizen, save on the mountain-tops, where the stag roams secure from the rifle of any but the most expert and adventurous cragsman. The Cashmere deer (*Cervus cashmeriensis*) is known by the native names “bara-singa” (twelve-horned), and “hanglu.” It seems to be very closely allied, if not identical with, *Cervus affinis*\* (Hodg.), and perhaps likewise Wallich’s deer (*C. wallichii*), both natives of the forests of Nepa and the Eastern Hima-

See *Journal As. Soc. of Bengal*, xliii.

layas. What may be the difference between them and the red-deer (*C. elaphus*) I cannot say. The red-deer of the Altai ranges,\* and of Amoorland, are said to be identical, and differ only from the European animal in being a little larger. That is not to be wondered at, especially with reference to the Scottish red-deer, which is well known to have been steadily deteriorating as cultivation has intruded on its haunts; neither in size nor in the development of the horn is the animal now what it once was; but the noble heads preserved in the mansions of the aristocracy, or found in bogs or superficial deposits, show that individuals were equal in size to any met with in the present day in Central and Northern Asia. Not only has the curtailing of its freedom been one of the chief causes of the deterioration of the red-deer, but by breeding always from the same stock, and the destruction of adult harts, leaving the propagation of the species entirely to immature animals, a feebler race has been the result, and doubtless, unless measures are taken to counteract these evils, the red-deer will become extinct; for what greater modifiers of animal existence are there than those which change habits or curtail natural tendencies? With all the attention bestowed on the red-deer, and the vast amount of pleasure and occupation it has afforded man for ages, it seems curious that no one has attempted to trace its relations and examine fully into its distribution. This deer appears to have been co-existent with man's earliest history, for among the peat morasses and caverns of Europe we find abundant remains of the elk, rein, and red deers, all of which roamed at one time in vast herds over the British isles; and as primeval history records man's doings, we find him hourly employed in the great

See Atkinson's *Travels in the Regions of the Upper and Lower Amoor*; and the *Natural History Review* for 1861.

work of extermination which has gone on from age to age, until the animals have become extinct, save in wild and sequestered regions, where his dominant sway has not yet extended.

The Cashmere stag stands about 14 hands in height ; the upper parts are a dark brown or liver-colour in summer, becoming more hoary as winter advances. The inner sides of the hips are reddest, and the belly and lower parts white. The male has large massive antlers, which are shed in March, and are not properly developed or free from velvet until the end of October. The most handsome heads have not the most points. The horns that branch gracefully are in greater repute as trophies than those of older individuals, whose antlers are often irregular and badly-shaped. The hind gestates six months, and when the hart is shedding his horns, repairs to the depths of the forest, where she brings forth a single calf, which retains the white spots until the third or fourth year. The pine-covered slopes and jungles of the Duchinpara, and valley of the Scinde river may be considered the headquarters of this deer. In the secluded depths of these solitudes they lie all day, to issue forth at dusk and feed on the grassy glades, descending even into the valley in winter, where they may be seen around the villages, and are frequently mobbed and killed by means of long bludgeons shod with iron rings. The Cashmere deer is erratic, and seldom remains long in one locality, but wanders from forest to forest according to the weather and season. As summer advances the herds mount to the limits of the forest, and by August are only to be found on the mountain-tops and situations where they are least likely to be annoyed by insects. It is only in the rutting season that the sportsman is certain of success, when, winding his way through the forest, the decayed twigs crackle under

foot. There a noble stag, in expectation of meeting a rival or mate, in maddening excitement rushes forward, and before he has time to make good a retreat, receives his death-wound.

In this way many a stag has fallen in the mountains of Cashmere.

The tiger, panther, bears, and wild dogs (*Canis primævus*), are its natural enemies. The first has been killed at Poonch, among the southern ranges, and although I have not been enabled to prove its existence in the Northern Punjaub, there is little doubt but it frequently visits the deer-forests. The native appellative, "sher," is used indiscriminately for all the larger Felinæ, and as the shickarees assert full-grown harts are often killed by the "sher," I conceive tigers must be the depredators, inasmuch as the panther is not a match for an adult, although beyond doubt young deer are frequently killed by them.

It is not uncommon to find shed antlers much gnawed, and as the same has been observed with reference to the red-deer of the Scotch forests, there is some appearance of truth in the assertion that the animal is in the habit of gnawing the cast horn during the formation of the new for the earthy salts it may contain. The natives state, however, that bears are the depredators on such occasions.

There is a large species known as *Cervus duvaucellii*. It frequents the lower ranges of the Eastern Himalaya, and may possibly be likewise found on certain parts of the western chains. It is impossible, however, in the present state of our knowledge of the haunts of Asiatic Cervidæ, to be able to define accurately their distinctions and localities. The sambar (*Rusa equina*) of the Mahrattas is said likewise to frequent the lower region of the Western Himalaya ; also the sambar (*Rusa hippelaphus*), a native of the forests of India. The jari (*Rusa*



*aristotelis*) or jarrow is a noble animal, from 14 to 15 hands in height, with antlers often a foot in circumference and 4 feet long, is found on the banks of the Jumna and Ganges in their mountain courses. A few stray along the sub-Himalayan valleys, and have been shot and seen near Simla. On the Cashmere ranges, however, its native stag would appear to reign supreme.

Eld's deer (*Cervus eldi*), found in the valley of Munceepoor, Burmah, and Malayan Peninsula, is worthy of note in a list of the antlered deer of Central Asia.

On the 25th of April we continued our hunting excursions. I ascended a mountain behind the village of Sipoor, and came on abundant trail of deer. A black bear was seen scampering towards a wood, and we flushed a woodcock in the forest, and several coveys of chuckore on the bare hill-sides. The Himalayan and yellow-backed woodpecker were common. Young wounded a deer which he lost after a tedious pursuit through the forest; Halkett reported having seen a wild cat (*Felis bengalensis*) of the small striped species. The shickarees picked up several antlers newly shed with their points gnawed, but nothing was bagged that day. On the following morning I crossed the Duchinpara, and ascended the wooded ridge opposite, by the side of a broad grassy opening: traces of deer were plentiful, for, irrespective of foot-prints, the bark had been peeled off the trees by them, whilst the fresh-ploughed soil in the forest showed that bears had been lately digging for roots. We did not reach the brow of the hill before the report of a rifle in a jungle below drew our attention in that direction, when soon afterwards two harts were seen charging at full speed across the mountain-side towards a belt of forest trees. This unexpected intrusion on our evening's beat obliged us to retreat homewards. When

descending by the outskirts of the forest a herd of deer was observed to emerge from the wood, gaze about for a few minutes, then move leisurely down a hollow, where they were lost to view. Following with great caution, we had scarcely dared to peep over the intervening inequalities, when the herd was discovered feeding in a little depression on the hill-side. I saw there was no time to be lost, as they were scattered, and one buck was within twenty yards of me. Accordingly, singling out the largest, I fired, when he rolled down dead. The others, taken by surprise, and not knowing from whence the shot came, rushed furiously towards me, led on by an old hind, in whose chest the contents of my left barrel "found a billet;" staggering, she fell, and rolled down the steep, bumping from rock to rock, until brought up by a jutting shelf far down among the long green bracken. There was no time for hesitation; so, seizing my spare rifle, I planted another bullet behind the shoulder of a young hart, and as the remainder were scampering up the hill-side the last ball was heard to strike the largest with the unmistakeable "thud," and soon the wounded animal became out-distanced by the other two. With all the satisfaction, and even pride, experienced by the hunter on occasions like the above, I will candidly assert that with an ardour and love for the chase equal to most men, I have more than once experienced a sorrowful feeling after the work of destruction was over, and I came to gaze on the noble frame I had deprived of existence. There was no time, however, on the above occasion for reflection, as already the carrion crows and vultures were circling overhead, and the shades of night approaching. Accordingly the carcasses were collected together after the shickarees in the most approved Mussulman fashion had cut their throats. Two men were left to protect them during the night from bears and

panthers, whilst we returned to the tent ; and next day the half-starved natives of the village of Yenaur fared sumptuously on venison. The secretion of the infra-orbital opening is much prized as a remedy for almost all diseases. The largest of the deer measured 13 hands at the shoulder. Young added a she-bear to our day's bag, and seldom a day passed but one or other was fortunate in some way. I killed another stag on the morning of the 28th of April, after a long and exciting stalk across the slippery sides of a very precipitous mountain. It is wonderful how the excitement of the chase carries one over dangerous and difficult places ; a break-neck sort of indifference seizes you ; you rush on regardless of obstacles, which in cooler moments might cause considerable concern. With the rifle in one hand and pole in the other, the prospect of an ibex before him, where is the hunter that would hesitate at any common obstacle ? Mayhap these lines may sometime catch the eye of a Himalayan hunter, and if so, let me bring to his remembrance that significant signal, like the tapping of the woodpecker on the trunk of the pine-tree, used by the Himalayan shickaree to draw his attention when a whisper would attract the game. No noise is better suited, for beyond the woodpecker's tap and the "wailing of the forest," there is oft no other sound that breaks the stillness of these alpine solitudes.

Our tent was moved from village to village whilst we explored the mountain slopes on the right and left, departing at an early hour in the morning to return at dusk. During mid-day when the game sought the shelter of the forest, my time was usually employed in wandering through the woods in quest of birds. Sometimes when perched on a projecting cliff I have been so overcome by the magnificent beauty and grandeur of the scene around me, that, lost in admiration, I

could scarcely confine my observation to any particular spot for three consecutive minutes. In these glens nature appears in all its wildness: the noble pines scattered here and there, or assembled in woods or forests, adorn the hill-sides, whilst the openings are clad in a rich grassy covering; at the bottom dashes a stream, fed and nourished by the melting snow above, its banks are clad in luxuriant vegetation, and fertilised by the debris of the flood; when—

Along this narrow valley you might see  
 The wild deer sporting on the meadow ground,  
 And here and there a solitary tree,  
 Or mossy stone, or rock with woodbine crowned.  
 Oft did the cliffs reverberate the sound  
 Of parted fragments tumbling from on high:  
 And from the summit of that craggy mound  
 The perching eagle oft was heard to cry,  
 Or on resounding wings to shoot athwart the sky.

BEATTIE'S *Minstrel*

As we ascended the Duchinpara the climate and scenery kept constantly changing; it seemed to be retrograding from spring to winter, as the mountains were half-clad with snow, and the temperature and vegetation decreased as we advanced. The fine broad valley was gradually narrowing into a glen with steep and rugged sides. On the 2d of May we reached Pilgam, where the mountain barometer gave an elevation of 8000 feet above the level of the sea. The ascent had been almost imperceptible, and yet we had risen several hundred feet since leaving Sipoor, and except a slight tinge of green on the hill-sides, there was no sign of spring even at that advanced time of the year. We explored the slopes below this village, where my companions killed a bara-singa and black bear. I saw a few hill-foxes (*Vulpes montanus*) and a

musk-deer. Now and then large masses of rock were observed to become loosened by the melting of the snow, and roll down the sides of the mountain, carrying destruction before them. Halkett had a narrow escape from one which struck a rifle from the shoulder of his servant. The nights were bitterly cold, and unless in the sun there was a chilling wind that necessitated us moving about. To judge distances exactly, or even with moderate certainty, is only to be gained by much experience and practice in a level country ; it is generally no difficult matter to guess with accuracy any distance within 500 yards, but on mountains, especially in firing across valleys or downwards, unless the hunter is careful, he will experience many a heartache. Across ravines objects generally look nearer than they actually are, and the reverse when below you ; the latter, however, is by no means always the case,—a great deal depends on the nature of the mountain, whether clad with vegetation or barren. In all barren places and mountains objects appear nearer than they really are. At Pilgam, one forenoon, I marked a black bear feeding on a hill-side at what I fancied was 100 yards distant. Adjusting my rifle accordingly, I placed it with great care and fired, when to my astonishment the ball hit a rock half-a-foot above bruin's back. I measured the distance, and found it did not exceed 60 yards ! Such pieces of bad luck soon taught me to be more particular in judging distances, and it was not until I had practised a great deal that I could make a moderate computation of any range beyond 50 yards. The scenery about Pilgam is full of noble grandeur, comprising steep and rugged mountains, their summits jutting into rocky pinnacles or beetling crags overgrown with moss and lichen, and often scarped and bare ; lower down the pine diversifies the scenery with its clustering or scattered forests, which the grassy glades and perpendicu-

lar banks tend to beautify ; the latter undulating downwards into the valleys with almost every variety of woodland and savannah. Northwards from the village runs a glen by which a pathway extends to Ladakh and Little Tibet, and about three miles upwards one of the chief tributaries of the Lidur is seen gushing from below a huge glacier. I followed the stream to this point, in expectation of meeting bears on the way ; but from the quantity of snow still covering the mountains and valleys, except a solitary bearded vulture, there were no symptoms of animal life. The mantle of winter was spread over everything ; not a blade of grass was above ground, neither had willow or birch ventured to bud. However, a few days suffice to alter nature's aspect altogether. At Pilgam the thermometer stood at 76° F. in our tent on the 4th of May, and the Lidur rose rapidly from the melting of snow on the surrounding mountains. The bare parts became tinged with green, and the walnut-trees were budding. The magical way in which vegetation springs up in these regions is really wonderful. In a single week, from "dismal winter hoar, comes gentle spring in all her ethereal mildness." I remember taking my gun one evening, and as I was strolling along the banks of the Lidur, came on a pretty little "dipper" (*Cinclus aquaticus*) for the first time since leaving Britain. This well-known tenant of the mountain-streams of Great Britain and Northern Europe is rather common in the secluded mountain valleys of Cashmere ; but I believe I am the first to record its presence in this portion of central Asia. My specimens from Cashmere resemble that met with in south-eastern Europe, and named by Temminck *C. melanogaster*, which must now stand as a local variety of the other. One of our party assured me that he saw the common European squirrel in a forest near

Pilgam. This may not be unlikely, considering it is a native of Tibet, and skins are imported to the Punjaub from Afghanistan. We soon found out our mistake in coming so far up the Duchinpara, for we had left the good shooting-ground behind. The bears and deer had all moved down the valley. Accordingly, retracing our steps by the left bank of the Lidur, we arrived at the village of Eish Makam, after a march of four hours. Every mile indicated an advance into a more genial region, but the descent was very gradual. That night the temperature rose from 42° to 60°, whilst everything around our new halting-ground betokened the appearance of summer: the chimney swallow twittered from many a straw-built shed; the villages and hamlets half-hid among groves of walnut, apple, pear, apricot, almond, and willow,—all pleasing pictures of rural beauty. The blooming iris decked the little village graveyard and mustjid, and there, as everywhere in the valley of Cashmere, added additional beauty to the loveliness of many a sylvan scene. There are two species of iris—a large-leaved (*Iris longifolia*), with purple and white flowers; and a smaller, with narrow leaves (*Iris nepalensis*). On the fine grassy glades the hoopoe was seen digging its long bill into the soft turf in quest of insects, and oft as its labours seemed nearly over, down would pounce a Drongo shrike to secure the fruits of its toil. The latter is a perfect little tyrant wherever he thinks he can be so with impunity. Even the Indian jackdaw seldom passes his haunts unmolested. What more pleasing sight can there be than, in some delightful evening in summer, to observe flocks of the beautiful crimson flycatcher (*Pericrocotus peregrinus*) pursuing their gambols around the tall walnut-trees of a Cashmere hamlet? Their soft twittering notes and graceful motions have oft excited in me feelings

of admiration and pleasure, until the Drongo shrike, or some unwelcome intruder, drove the gorgeous little fairies away.

The mountain-slopes on each side of the valley at Eish Makam are reported to have once been among the best hunting-grounds in Cashmere until the murderous rifle of the Englishman almost annihilated the large game. I beat over one hill-side south of the village, and in the course of the day met with several herds of bara-singa; but the harts were all without horns, and, from shedding their hair, were not in good condition either as trophies or for the table. Two old hinds passed within a few yards of us, and for a few minutes seemed doubtful whether to scamper off or face us. After trotting leisurely into a wood, they turned round, stamped with their fore-feet, and barked in their coughing-like way, and only took to flight when we bellowed after them. My shickaree, evidently more scrupulous of the quantity than the quality of his venison, kept exhorting me to kill one; but my better feelings decided otherwise, and we left them for the autumn. Several monal pheasants were observed. I wounded a young black bear, but owing to the denseness of the ferns growing along the base of the hill we lost its trail. Halkett was more fortunate, and killed a she brown bear and wounded its cub, which he found the following day lying dead at some distance from the spot. Wild rhubarb is exceedingly plentiful on all the exposed parts of the mountains, and when young forms the first food of the brown bear on its exit from its cave in early spring. Nothing can exceed the variety and beauty of the wild flowers of these mountains; to the botanist they are replete with the greatest interest. My time, however, was so occupied with other natural history pursuits that I had not leisure to devote to this enchanting



study. I observed two species of humble bees somewhat common along the grassy banks of the Duchinpara. One sort was rather larger than the common British species, but is jet black ; the other had the head and lower parts black, the back and loins white, with a red spot close to the sting. In a pine-forest, for the first and last time, I had a glimpse of a rare woodpecker, about the size of the lesser woodpecker. Its head was white, neck and breast bluish-black, and belly and vent red.

By the 10th of May spring had fairly set in, and clothed the woods and jungles along the sides of the valley with their gayest attire. The hawthorn, wild rose, and a lilac (with small flowers and numerous elliptical leaves) were in full blossom, and filled the air with their delightful perfumes ; whilst creepers hung in beautiful festoons on tree and shrub. The edolio or black and white crested cuckoo (*Oxylophus melanoleucos*) was heard piping its well-known call, and in the evening, sporting like swallows, and attractive by their loud and wild cry, were flocks of the common European bee-eater. Summer was come, and the long grass and ferns on the mountain-sides showed us the uselessness of seeking for bears in such dense cover. Accordingly, I packed up my rifle, and commenced the ornithology of the district, descending from the excitement of deer-stalking, to the no less agreeable pastime of searching after the little feathered denizens of the woods and glades. Among bushy places a small white-throated warbler, a little less than the cinereous white-throat of Europe, is very common. The jackal's howl was heard every night.

The silk-worm is reared in great numbers in several parts of the valley and its offshoots. At Brar we witnessed cocoons being boiled over a slow fire, when the silk was collected by

winding the threads round a wheel worked by the hand, afterwards dried, and made up on reels.

On the 11th of May we moved down the banks of the Lidur, now a fine rapid river, to the pretty village of Mattun, situated in a grove of magnificent chunar and walnut trees, under the umbrageous boughs of which we pitched our little tent, close to a square enclosed tank, which literally swarmed with the so-called Himalayan trout, some to all appearance 2 lbs. in weight.\* After the long march and exposure to the rays of a powerful sun, we plunged headlong into the cold and refreshing water of the tank, which is supplied by a stream that rises in the neighbouring mountains. It was delightful to sit under the trees and enjoy the pleasant afternoon. Sardinian starlings chirped in hundreds overhead among the branches or holes in the trunks of the old trees, where they build, and the sparrows in countless thousands joined in ready chorus among the light-green leaves of the chunars. The above starling is easily recognised by its uniform shining black plumage, and the long and tapering feathers on the neck and collar. The black-bird-like note of the Cashmere song-thrush (*Turdus unicolor*, Tickell) was heard in all directions. A few were building their nests among the chunars around the village. This thrush remains in Cashmere until winter, when it migrates southward to the plains of India, and returns to the mountains in spring. The changes to which its plumage is subject have puzzled naturalists; hence each variety has created for itself a name. I believe the Calcutta thrush (Latham), *Turdus dissimilis* (Blyth), to be one of the varieties, as undoubtedly the *Turdus unicolor* (Gould) is another variety approaching that

\* I was unable to determine this species. It is soft-mouthed, and in no particulars does it assimilate the genus *salmo*; the name has arisen from its frequenting brooks; its flesh is soft and almost tasteless.

described by Tickell in 1833.\* This plain-dressed but characteristic tenant of the wooded parts of Cashmere represents the song-thrush of Europe. It is less in size, being not larger than the redwing. On leaving Mattun we turned eastward to examine the celebrated ruins of the temple of Martund, situated on a slope near the mountains overlooking the magnificent kirawa of the same name. Again, from this point the geologist will mark the old water-lines across the sides of the mountains, and the shingly conglomerate which abuts in several places. The similarity between Martund and the temples in the Baramula Pass is striking; with the little temple of Pandreton they belong doubtless to one epoch, as shown in Professor Wilson's *Essay on the Ancient History of Cashmere*, or the carefully-compiled descriptions of Mr. Vigne.† Making allowances for the ravages of time and the ruthless hand of the invader, nothing I have seen in the valley testifies to the severity of the earthquakes which have shaken it from time to time more than the yawning gaps and tottering walls of the temple of Martund.

The city of Islamabad is only a few miles distant. It is composed of seven or eight hundred houses, scattered without much regularity and appearance. From the little hill westward of the town the traveller may command a magnificent view of the valley. The chunar-trees here are of gigantic size, and the largest I have seen anywhere. The circumference of one at 4 feet from the ground measured 29 feet. They form a delightful shade around the sacred spring of Annat Nag, which, like the tank at Mattun, is surrounded by a wall, and swarms with Himalayan trout. There are two sulphureous springs in the town, one of which deposits sulphur in small quantity, and has a temperature about ten degrees higher than the spring-water in the neighbourhood.

\* See *Jour. As. Soc. Bengal*, ii. 577.

† *Travels in Cashmere*, vol. i.

Islamabad is proverbially famous for its dirtiness, and fewer cities have better natural advantages at command; with abundant water supplies, and every benefit as regards position, yet no one can help being forcibly impressed with the utter disregard for anything approaching order or cleanliness in the inhabitants or their dwellings. It is perhaps too severe to lay this charge altogether on the people of Islamabad, inasmuch as poverty and extortion have had their usual effect on the Cashmerees in general. I always felt relieved of many olfactory discomforts when I found myself clear of their towns, and was once more among the green fields and lovely groves. One of the chief songsters of the valley is the yellow-vented bulbul (*P. leucogenys*). The red-vented species (*P. haemorrhous*) is common enough in the woods of the lesser ranges southwards, but not in the valley. Among the top-most branches of the tall chunars, fluttering in the sunbeams, but usually in the evening, is the small flycatcher (*Hemichelidon fuliginosa*). Several specimens procured near Islamabad had a good deal of rust-coloured markings on the wings, and resembled the description of *Hemichelidon ferruginea*, Hodg., which is clearly a very close ally.

About three miles in a south-easterly direction stands the old garden of Atsibul, with its beautiful natural fountain gushing from beneath the trap rock. The spring rises with some force for a height of about a foot and a half, and from its volume would indicate considerable pressure. This ancient pleasure-garden of the Mogul emperors is famous in the history of their times. Among its shady avenues the enchanting Nourmahal spent her evenings, and the great Jehangire is said to have repaired to its revigorating baths, the remains of which bear the impress of their former importance. During our visit the garden was stocked with

vines, apricots, peaches, plums, apples, pears, etc., all growing in great luxuriance, and surrounded by the most beautiful sylvan scenery to be seen anywhere. I took my gun and strolled through the groves in quest of birds. The fairylike form of the paradise flycatcher flitted from bough to bough, while the cooing of the Oriental pigeon sounded sweetly through the copse, and the blackbird-like chaunt of the Cashmere song-thrush was heard sounding mellowly in the neighbouring groves ; but of all that charmed me most was the well-known and familiar voice, "that has no sorrow in its song, no winter in its year;" the remembrance of the budding trees and the green fields and copses of dear old home ; and often is it heard in these regions, for the cuckoo calls all over Cashmere and the neighbouring ranges from March to June. In bushy places numbers of red-backed shrikes were seen hunting after beetles ; and the roller and oriole, as if doomed to dwell in the midst of alarms, were off on the first symptoms of our approach. The latter has a soft, short note, and may be often seen in the wooded parts of the valley. The common sandpiper was by the side of the brook, emitting its clear plaintive cry, and about on the sandbanks we saw several ring-plover. I shot two pied kingfishers and a black stork on the rivulet near the village of Changos, so famous in the olden times for its pretty dancing-girls. But Changos now-a-days has no such pretensions, although the dark eyes and sunburnt countenances of old and young testify to a race distinct from their neighbours, and with all the appearances of gipsy extraction. It has been asserted that more than one Changos girl entered the zenanas of the Delhi emperors. There are several springs in the neighbourhood of Atsibul. The one at Kokur Nag gushes forth with considerable force, and forms a rivulet of a good size, which ulti-

mately joins the Barengi, a tributary of the Jhelum. In the limestone near the stream there is a vein of iron, which produces small quantities of the metal. After a few miles' journey through a country densely clad with tree, bush, and scrub, chiefly the hazel-like *Fothergilla*, and across several branches of the Jhelum, we arrived at the celebrated fountain of Vernag. This place, although in ruins, bore still the impress of its pristine grandeur, and, even in all its fallen beauty, stood in point of comparison with the wretched edifices built there by Goulab Singh as would its noble founders have ranked with the avaricious and tyrannical Jumoo Rajah. Over the ruined gateway is inscribed in Persian—"This fountain has sprung from the waters of Paradise ;" and on the octagonal wall which surrounds the spring is another tablet on which it is recorded that—"This place of unparalleled beauty was raised to the skies by Jehangiere Shah Akbar Shah, in the year 1029" (A.D. 1619). The well sends forth a volume of water of some size ; the former abounds with trout. The little hill behind Vernag hides the view towards the east, but in every other direction the fine valley, with its gentle slopes, fields, and crystal streams, gladdens the eye. We ranged through beautiful copses, by smiling hamlets, and across grassy levels, through rice-fields ; at others winding up the willow-fringed banks of rivulets, that "chatter, chatter as they flow, to join the brimming river." The gay little kingfisher and the spotted enicurus were seen hunting along the babbling brook-sides. I gathered many well-known English plants, which may have been in part introduced from time to time with the cereals and other grains. The bird's-foot trefoil, the wood strawberry, burnet saxifrage, were all common. Again, white and red clovers clad the grassy banks. A species of burdock, resembling the British ; the dandelion,

goose-grass, shepherd's purse, were all plentiful ; besides the wild thyme, which sent forth its sweetest fragrance. A viburnum, differing in several respects from the English Guelder rose, bloomed sweetly by the sides of streams and in shady places ; the wood geranium, with its white variety, was abundant. The meadow grass and ribwort plantain covered the fields, whilst in "humble bowers" the Cashmere blue-bell "lurked lowly unseen." There was, however, something wanting to complete the floral picture of home—the "wee, modest crimson-tipped flower" was not there—no "daisy decked the green."

Following up our explorations of the southern portion of the valley, we kept along the base of the Futi Pinjal, whose tops were still covered with snow, whilst lower down the dark forest and rich green vegetation clad their prominent ridges and gradually retiring slopes, at the bottom of which great banks of alluvium stretched into the valley. The wheat was springing up, and ready for the deluging rains of the S.E. monsoon, and already masses of cloud were accumulating on the mountain-tops. The rainy season commences about the end of May, when vegetation attains its maximum in the course of a week ; the climate is then very relaxing, and it is perhaps the preponderance of wet over dry which is the great objection to the valley being used as a sanitarium during the summer months. Ague is not uncommon, but the other diseases peculiar to India are seldom observed. Small-pox has left its fearful traces on many a cheek ; and ophthalmia, the nursling of poverty and filth, is rife among the lower classes. The ignorance of their doctors is in keeping with the wretchedness of everything intellectual in the Cashmerian character, and, as in India, the wandering vagrant or fanatic fakir serves all sanative demands. My small stock of medicines was soon

exhausted, for scarcely a day passed without numbers of applicants crowding round me. I often relieved suffering humanity, and with more ample means at disposal might have done substantial good. Many cases of cataract were cured simply by means of a fine sewing needle, slightly bent at the point, and stuck in the end of a piece of wood : the success of such operations proclaimed my presence far and wide. I daresay even now there are Cashmerees who remember my humble efforts, and I will say, with all their faults, gratitude to those who soothe the bodily sufferings is never wanting with them.

I recollect in a subsequent visit to the valley I had been delayed by one of Goulab Singh's minions at the fort of Chacar, near Dunna, from want of coolies to carry my luggage. No persuasion or expostulation availed ; the fellow seemed determined to prevent our progress if possible, or at least to throw obstacles in our way, so that we might not again attempt another journey, and inform others of the difficulties to be encountered. After much useless negotiation, a wretched-looking man made his appearance at the door of the hovel in which I was quartered. He had been wounded in one of the many disastrous raids made by Goulab Singh against the chief of Dardu. This poor fellow's left knee was contracted, and he had long despaired of any relief to his deformity. One could therefore fancy his state of mind when I found that the distortion depended entirely on the simple contraction of his ham-string tendons, and was removed at once by division of the latter, so that in a few minutes the bent limb was made straight. I had the satisfaction afterwards of seeing him walking about. The result of my operation reached the fort, and the next morning I had twenty of the best coolies the governor could procure, all ready to carry myself or baggage anywhere.



The Vishau river is considered by the Cashmerees as the parent of the Jhelum : it rises in the Kosa Nag lake, which is fed by the melting snow and glacier in a hollow or an up-land valley of the southern ranges. The river runs through a narrow rocky glen, remarkable for picturesque grandeur. The falls of Arabul are well worth a visit, as few localities in the Cashmere mountains possess such attractive scenery. A pathway leads from the village of Utu to within a short distance of the cataract. Few Englishmen could sit on the grassy banks, and witness the rare mountain beauty of Arabel without a feeling that did Cashmere belong to England, there is no spot among all its lovely scenery better suited for a pic-nic. To one of us it brought back recollections of similar mountain beauties

“ Among the rugged cliffs that guard  
The infant rills of Highland Dee.”

I gathered wild asparagus (*A. racemosus*) and rhubarb, thinking to give my companions a treat ; but much to our disappointment, although the asparagus looked excellent, it had none of the esculent qualities of the cultivated plant. In damp situations a *forget-me-not*, mouse-eared chickweed, and sheep's sorrel were observed. A broad-leaved dock was plentiful around the village of Hungipoor.

The ring-dove is often seen in the valley, and frequents bushy situations.

I killed a red weasel (*Mustela subhemachalana*) close to the hamlet of Utu, where we found it had destroyed several young chickens and fowls' eggs. Its total length, including tail, was 19 inches ; colour, an uniform light-brown, darker on the back ; nose, mouth, and throat, white ; tail lax and tapering. This handsome little creature is not uncommon in the valley. I have seen several ermine-skins said to have been

procured in the Cashmere mountains : it is considered by natives to be somewhat common. The heron is a tenant of the parent streams of the Jhelum. From the hamlets of Hungipoor, in one of the valleys at the southern end of Cashmere, we witnessed a thunder-storm, which, for awful grandeur, I have seldom seen surpassed. The lightning shot in tremendous zig-zags across the mountain-tops. One bolt struck a pinnacle of rock, and remained a globe of fire for upwards of two minutes. Such meteoric phenomena are said not to be uncommon during Himalayan thunder-storms.

## CHAPTER XI.

Magnificent View of the Valley of Cashmere—Traces of an Ancient Lake—An Excursion to the Interior of the Futi Pinjal—Fauna of the Northern and Southern Cashmere Ranges—Bears, Deer, Ibex, and Wild Goats partial to Localities—Mode of Fighting pursued by the Wild Goats and Sheep—A Noble Specimen of the Great Goat or Serpent-Eater—Bear—Wild Grandeur of the Scenery—Natural History of the Markhore—The Tare-Goat—Wild Dog—Black-headed Pheasant—Silver Fox—Weather—Monsoon—Ornithology of the Valley—Cashmerian Valley Scenery—Goat Antelope—Snakes—Small Venomous Viper—Water-Snake—Birds—Cross the Wurdwun Pass—Snow-storm—Servant lost—Inhospitable Region—Bear-shooting—Misery of the Natives—Habits of the Isabella Bear—Herd of Ibex—Frightful Accident by an Avalanche—Flying Squirrel—Ibex-hunting—Hermit Bears—Lost in the Forest—Himalayan Ibex—Dangerous Travelling—Steep Mountains—Imperial Rock-pigeon—Distribution of the Brown Bear of the Himalayas, and its Habits—The Black Bear; its Natural History—Return to the Valley—Red Marmot—Scenery and Fauna of the Valley—Serinuggur and the Ruler of Cashmere—View from the Temple of Solomon.

ONE of the best views of the valley may be had from the top of the little hill behind the village of Shupeyon. The Bimber pass may be seen traversing the Southern or Futi Pinjal, and presenting an appearance as if a great slice had been cut out of the mountain barrier. It is the chief entrance to the valley from India, and seems to have always been the high-road, although that by which we entered is open all the year, even in the depths of winter, when all the others are impracticable. The vast accumulations of gravel and detritus are nowhere better seen than at the mouth of the Bimber pass. The

great banks several hundred feet in thickness, with their water-worn pebbles, sand, and clay, together with erratic boulders here and there, all point to a far-back period in the history of the country, when the glaciers now confined to the most upland hollows stretched down into the valley of Cashmere. The view looking up the pass is very striking and grand.

Dense forests of pine clothe the sloping ridges, and stretch far along the windings of the defile. As we are now in the neighbourhood of the Peer Pinjal, I cannot omit a few recollections concerning a hunting excursion I made to this district two years after the events here recorded. The journal of my travels in Cashmere on that occasion was unfortunately lost during my absence in Turkey at the close of the Crimean war. I regret the loss the more, as it contained many valuable natural history notes on the habits of several of the large mammalia of the western mountains. In traversing the forests and mountains of the Futi and Peer Pinjal, one is astonished, after a visit to the northern chains, to find there noble forests without the bara singa, or the numbers of bears he had been accustomed to encounter on the opposite ranges. I could not satisfactorily account for this; the advantages as regards wood cover and food being the same. This partiality on the part of certain animals to localities is not peculiar to the two just mentioned, for I have often travelled over large tracts of the Himalayas of the most inviting character, and scarcely met with a wild creature of any sort. As a rule, the northern slopes are more devoid of animal existence than the southern, from, possibly, being exposed to the boreal blasts, and their floral characters participate in nearly the same differences.

The brown and black bears never associate, and when they

meet, one invariably attacks the other. As far as my observations extend, the black seems always the assailant. However, the ibex and markhore often dispute each other's footing ; and I am not aware that they are ever met with on the same ranges. The shickarees all agree that the Cashmere stag flies before the tare and markhore, when the two latter are driven by the rigors of winter to seek food and shelter in the deer forests, for it is seldom they leave the dizzy crags or the mountaintops unless forced by severity of weather. The pugnacious tendencies of both goats and sheep in the wild state are just as strong as when domesticated. The markhore, tare, ibex, and houriar all charge in much the same fashion as their civilised congeners. I have seen two strange herds meet, and the old males rushed at one another, whilst the hinds and young seemed perfectly indifferent. A native informed me that he had observed two male ibex fighting on the shelf of a rock until one pushed the other over, which fell, shattered to pieces, many hundreds of feet below. Thus the strongest gains the day, and the weakest goes to the wall. The constant warfare for ascendancy must act through ages on a race, and provided the victor and the strongest males get possession of the females, the result will be a healthy, vigorous progeny ; whereas, as already remarked in the case of the red-deer, by destroying the old stags, we leave the propagation to immature individuals.

In spite of the remonstrances of the natives, and the insalubrious weather of the monsoon months, I started alone, in July 1854, from Serinuggur to hunt the markhore on the summits of the Peer Pinjal. At that season the larger game are casting their winter coats ; the deer are without horns, and in bad condition ; the bears are safe among the ever-green verdure of their native haunts, and the ibex and mark-

hore, which in spring might have been stalked low down, were now browsing among the clouds on the peaks of the highest mountains. It was the worst time of the year for hunting; and had it not been that my shickaree had gained good information of a herd of tare and markhore on the spurs running towards Zuznar, one of the loftiest peaks of the southern Pinjal, it would have taken a great deal to have induced me to undergo all the fatigue, discomfort, and dangers of a fortnight's bivouac among the clouds. Before or since I never underwent so much arduous bodily exertion; and I may truly say never were zeal and determination more amply rewarded. The first week's occupation was chiefly in following up the trail of a herd of markhore, when one young male and a tare were killed. One day I spied a bear asleep on the decayed branch of a pine on a jutting shelf of rock. I remember, when the bullet hit him, how, bounding upwards, he fell with a tremendous impetus some 400 feet into the bed of the torrent, and was rapidly borne down and landed high and dry on a bank; moreover, just as the echoes of my rifle died away, how, looking upwards through the misty vapours, I spied a herd of frightened markhore, led on by a noble old male, all dashing at full speed across the crumbling mountain-top. On the three following days we continued on their trail, sleeping under rocks, and were up and after them as soon as day dawned. However, the wily old buck was invariably on the look-out, always guiding his herd to open and inaccessible places, until on the afternoon of the third day, tired and wearied from repeated exertion, and vain attempts to circumvent the vigilant leader, my shickaree was about to clear a spot for the night's bivouac, when we espied the patriarch of the herd on a jutting cliff far above us. Then the old hunter Ajez Khan exclaimed: "We shall have better luck to-

morrow ;" and his words proved true ; for at day-dawn we came on the herd feeding in a hollow above a glacier which sloped gradually down into the valley. Singling out the two largest, I pressed my trusty Westley Richards to my shoulder and fired on the fine old buck ; before he had fallen another bullet pierced the second largest male of the herd, and when the smoke cleared away both were seen rolling down the ice-clad slope. How my heart beat with delight, and Ajez Khan hugged and kissed the rifle ! with what wild excitement we half-slid half-bounded down the glacier after our quarry, which lay like little black specks on the snow far below us ! They had bumped and rolled until brought to a stand-still by a huge boulder on the ice, where we found them just as the sun was setting. In all my Himalayan travels I have never witnessed a scene so wild and grand as that glen ; and never shall I forget the circumstances which have fixed its noble magnificence on my memory. The largest trophy measured  $11\frac{1}{2}$  hands at the shoulder, and each of his horns was  $48\frac{1}{2}$  inches in length, and 3 feet 2 inches between their tips. His long, flowing black beard, dashed with gray, stretched from the chin down the dewlap to his chest, hanging in long straight tresses to his knees. He looked in every respect the very monarch of the glen. The shickarees who crowded to my house in Serinuggur subsequently, to examine the head, alleged that it was without exception the largest that had been seen or killed on the mountains of Cashmere.\*

\* Young measured a pair of horns in the possession of the present ruler of Cashmere which weighed 20 lbs. ; the length of each, 3 feet  $7\frac{1}{2}$  inches ; between the tips, 3 feet 11 inches ; circumference,  $11\frac{1}{2}$  inches. Their points were blunted and worn. The animal must have been larger than the above. The horns were picked up in a snow-drift on the mountains of Dardu.

The markhore (*Capra megaceros*, Hutton) is known in Little Tibet as the *raavacheh* and *tsuh-ra* or *water-goat*. It is undoubtedly the "rass" mentioned by Wood in his journey to the sources of the Oxus. The markhore, signifying serpent-eater, is found on the mountains of Persia, Afghanistan, and, proceeding eastward, is plentiful on the ranges around the Khyber Pass. From Torbela and Little Tibet it wanders down the Suliman range as far as Mitenkote on the Indus, at the junction of the latter and the Sutluj. It is common on the north-western ranges of Cashmere, including Dardu; from thence a few herds are to be met with all along the southern or Futi Pinjal as far as Kishtewar on the Chenaub. I have not heard of its having been found eastward of the river Beas. The northern ranges of Cashmere and Ladakh are apparently without a single individual, perhaps on account of the ibex and wild sheep frequenting these mountains. It is curious to observe the differences as to size and curvature of the horns of individuals from different localities. All the males observed by me on the southern Pinjal had flat horns with few twists. The specimen just mentioned had one perfect and two imperfect turns, while specimens from Peshawur ranges and the Suliman were rounded, straight, and twisted like a corkscrew. A pair of horns in the museum at Kurrachee in Lower Scinde, and said to have been brought from Herat, resembled again the Cashmere specimens. Some horns rise perpendicularly from the head, whilst others diverge backwards and outwards. I have examined the skins of many markhore from different localities, and after allowing for changes consequent on the season of the year, I could not discover any difference worth mentioning. Mr. Blyth and Dr. J. E. Gray consider this species is most likely a variety of the domestic goat, but from all I can learn of its habits and appearance, there is



perhaps more cause to consider it the progenitor of the domestic animal than even the ibex.

The markhore is usually found in small herds. Like the ibex, it delights to browse on steep and rocky mountains, ascending and descending with the seasons. In winter, in common with other alpine species, the fur becomes dense from the woolly pileage, which gives a lighter colour to the coat than during midsummer and autumn, when it disappears, and the fur is short and brown. As before stated, the old males have an enormous beard extending from the chin down the lower part of the neck to the chest. That of the females is short, and her horns are flat, and seldom more than 10 inches in length. The tare has much of the habits and appearance of the markhore, and is frequently seen associated with herds of the latter. Shickarees have strange stories of the serpent-eating disposition of the markhore, but apparently without any real cause. I recollect my friend Ajez Khan assuring me that an ammonite he picked up on the mountains had become petrified from having passed through the intestines of a markhore!

Herds of tare (*Capra jemlaica*, Smith) were often observed during my excursion, usually young. The short triangular horns of this species of goat distinguish the males from any of its allies. The tare is plentiful on the mountains by the banks of the Chenaub, in the district of Chamba; it is also found in Lahoul and Kooloo, where it is likewise known by the name of kras. The natives of the southern Cashmere ranges call it jugla. I was told that during severe winters both markhore and tare may be found in the same forests. The former has been killed on the mountains near Uri Fort, on the Jhelum.

A fine rhododendron, with pale pink flowers, grows on the

sheltered sides of the valleys around Zuznar. On bleak situations I met with the only specimen of the black-breasted warbler (*Calliope pectoralis*) I have seen on the Himalaya. It is a solitary bird, and affects the stunted juniper-bushes at high altitudes ; it is about the size of the redstart, which in habits it much resembles. The ram-hun or wild dog (*Canis primævus*) is a native of the Cashmere ranges, and although not to say common, is by no means rare ; but it is so stealthy in its habits that all my attempts to obtain specimens proved abortive. I devoted ten days to the pursuit of a pack, and followed their fresh trail over many dangerous and difficult places ; but they were too knowing, and always kept out of sight. Many native sportsmen, though familiar with its depredations, have never seen the animal. They hunt in packs, and attack the largest deer. Even the Cashmere stag is said to be brought to bay and killed by packs of wild dogs. One was killed by my friend Lieutenant Abbott of the 75th Regiment, near Allahabad Serai, on the Peer Pinjal, and its skin identified with specimens at home. The wild dog seen by Dr. Hooker on the Khasia mountains, and known there by the names kuleam, khas,\* may be a different species. Even on the western ranges, I have been told by natives of considerable variety as regards colour and size of wild dogs. In a collection made by Captain Peyton, 87th regiment, on the Karakorum mountains, north of Ladakh, I saw a skin of a wild dog he had procured from the natives, who assured him preyed on the *Ovis ammon* and Tibet antelopes, and that it often killed the tame sheep and goats, and in winter came close to the native villages. The nose was pointed, hair long and thick, the latter containing much woolly pileage ; the general

\* Colonel Sykes considers this species identical with the kolsun of the Deccan (*C. dulchamensis*).

colour of the coat was white, with splashes of black on the back and hips ; the tail was short and bushy, with the tips of the hairs black. The domestic or pariah dog is often forced to depend on its own exertions, and hunts in packs over large tracts of country on the Indian plains, but not apparently on the Himalayas.

The black-headed or Hastings pheasant (*Cerionis melanocephala*, Gray) is found on the wooded slopes of the Peer Pinjal. This noble representative of the Phasianidæ is one of the gayest, and at the same time largest, of its family. From the brilliancy of plumage, it has been designated by Europeans the Argus pheasant, but the true Argus is a native of Sumatra and the Malayan peninsula. The most common local name for this species, besides the above, is "jewar." In some parts of the Cashmere ranges, especially in the district we are now investigating, the male is called "sonalu," and the female "selalee." Its close ally, the Sikim horned pheasant (*C. satyra*), has not to my knowledge been met with on the north-western Himalaya. The loud wailing cry of the jewar sounds mournfully along the valleys, and is more often heard at dusk and break of day than at any other time. Oft, in the stillness of an alpine solitude, at my tent-door, by the cheerful log-fire, have I listened to the well-known *wa, wa, wa* of this bird. I believe the jewar is much more common than is generally supposed, for its habits are cunning and stealthy, always preferring the deepest solitudes of the forest, and seldom taking to wing unless when hard pressed. Like other Himalayan forest game-birds, it is fond of secreting itself in dense foliage. The jewar is usually met with in flocks. I have never seen the plach or monal frequenting the same localities with the above species. The two former are common on the high wooded slopes of the northern Pinjal, but the

jewar is not found in these situations. One night we were disturbed by the barking of a fox, and at daybreak on the following morning I shot a female and cub of the silver fox (*Vulpes flavescens*), both within a few yards of my resting-place, where they had been devouring the refuse of my previous night's dinner. This species differs in a well-marked degree from the red species of the hills, which was likewise seen on the Peer Pinjal. The silver fox, as we shall see, is also a native of Ladakh and Tibet, where it is said to be common.

To return to the original narrative. On the 21st of May we left Shupeyon during a very heavy fall of rain. I fear, with all the veneration one entertains for the unparalleled grandeur and beauty of Cashmere, there is no escaping the fact that for rain few countries surpass it. About the beginning of May the monsoon clouds collect on the tops of the Pinjal, and continue depositing their contents for the three succeeding months. I could not ascertain an approximation to the annual amount, which, however, must be great. It often rains for weeks continuously; the valley becoming overwhelmed in cloudy vapour, and producing a moist and relaxing climate which is anything but comfortable. At that season agues and bowel-complaints are common; and yet a few days' march northwards, and you enter on the rainless country of Ladakh. So abrupt is the division between the two regions, that while the southern slopes of a mountain may be covered with luxuriant vegetation and clouds, the northern portion is bare, barren, and sunburnt. The S.W. monsoon becomes expended by the time it has emptied its contents on the northern Pinjal,\* which

\* "There they drop more of their moisture in the shape of snow and rain, and then pass over into the thirsty lands beyond, with scarcely enough

also accounts for the verdure of these ranges compared with the more northern chains of Ladakh and Tibet.

Although it was the 21st of May, and summer may be said to have set in, we had felt few winds more cold and cutting than that which blew on us from the Bimber Pass as we wound our way through ploughed fields, and waded over roads almost knee-deep from the incessant rains. We spent the night at the village of Mohunpora, and pitched the tents under its trees, among the foliage of which were myriads of chirping sparrows and mina birds, now busily intent building their nests in the clefts and holes of the fine old walnuts and chunars.

The breeding-season is much later in the valley of Cashmere than in the Punjaub. Birds begin to pair and build about the middle of March in the plains, whilst it is May before they commence at the altitudes of from 5000 to 7000 or 8000 feet. There is nowhere in the world where sparrows are more plentiful than in the valley; there they assemble in countless thousands in the chunar groves around the villages, and keep up a chorus of discordant sounds quite deafening to unaccustomed ears. The govind kite builds its nest of sticks, pieces of rags, etc., and always seems to prefer the highest tree around the village, where it soon renders itself notorious for depredations on eggs and young poultry. The carrion crow seeks the alpine localities to rear its young. There appears a great sameness in the ornithology of the valley compared with the forests and higher altitudes around; but that is compensated by their exceeding number. The house-sparrow, red-backed shrike, Sardinian starling, European jackdaw, and ring-dove (*Turtur humilis*), are the most com-

vapour in them to make even a cloud."—Maury's *Physical Geography of the Sea*.

mon species. Every grove has its song-thrush (*Turdus unicolor*). The chimney-swallow and hoopoe are seen at almost every turn. The hoopoe is more frequently seen on trees than on the ground. The swallow differs in no respect from the English bird, and it is noteable that I did not observe any with the deep rufous on the belly which characterises the Egyptian variety called *Hirundo rustica orientalis*. The gray titmouse, like the greater tit of the north, is seen climbing along the eaves of straw-roofed houses or suspended from the points of twigs. The yellow lark-toed wagtail is common on damp and marshy places; its habits are similar to the true *Motacillæ*, but its flight is not so powerful it perches securely on the tufty tops of the reeds and grass by means of its long hind-claw. On our way we gathered a species of yellow rose growing by the road-sides, and observed again the two irises in abundance. Although the weather continued rainy, we determined on pushing across the northern Pinjal into the Wurdwun valley in quest of brown bears and ibex. The former were said to be so numerous that one European killed no less than thirty in the course of a few weeks. Accordingly we repaired with all possible speed to Islamabad, and set to work to reduce our camp to the smallest possible dimensions, as from reports it seemed that a fresh fall of snow on the pass would render it necessary to march as light as possible.

The fine grassy plain around the city has a peculiar English appearance, especially when its lawns are covered with herds of cattle. On the Veshau river, creels are placed in the rapids for the purpose of catching carp. I killed a specimen of the brown water-dipper; its European congener, however, does not seem to love the little mountain streams of the surrounding ranges. The red poppy was blooming in great

abundance in fields. The poor and rich as usual crowded round my tent, many of the latter suffering from diseases quite remediable, but time would not allow, and my stock of medicine was already reduced to a few simples. It is sad to see so much misery and wretchedness in a land second to none in its natural capabilities ; but it is of no use that the husbandman toils to make provision for the future ; as soon as fortune is seen to smile on him, the hand of the extortioner seizes his little gains, and thus he is driven to rear only sufficient for his immediate wants. We soon learned when the tax-gatherer was going his rounds by the heaps of grain in the villages, and the groans of discontent to be heard issuing from the houses.

The strange-looking goat-antelope (*Capricornis bubalina*), known by the name "ramoo" in Cashmere, and "serou" in other districts of the western Himalaya, is perhaps the rarest of the wild ruminants. Occasionally the sportsman comes across an individual in the depths of the alpine forests, but the animal is very solitary in its habits, and seldom more than a couple are seen together. Both in figure and movements the serou is perhaps one of the most ungainly of its tribe, and so stupid is it that when come on unawares it will stand and gaze at the intruder : even the report of a rifle seldom scares it. It is fond of rocky ledges covered with pine and forest trees in secluded mountain valleys ; here one may reside for years, going or returning to its feeding-grounds by the same path, which is marked like that of the musk-deer by heaps of dung. The serou has the legs of a goat, the horns of an "antelope :" its general appearance is bovine ; whilst the long stiff bristles on its back, and general shape of the head, are decidedly porcine ;—a sort of nondescript beast, which European sportsmen often call a "very extraordinary-looking ani-

mal," and so it is. The horns, which are present in both sexes, vary from 10 to 15 inches, and from 3 to 4 inches in their greatest circumference ; they are annulated at the base, and taper backwards to sharp points. The hide is very thick, and almost ball-proof, especially at long ranges. The hair on the neck and back is long, stiff, and straight, and the general colour black, with bright rufous splashes on the sides of the body, inclining to white below. The serou is said to fight desperately ; it has been known, when wounded or brought to bay, to have kept off a pack of wild dogs, and killed several by its sharp-pointed horns. A few are met with on the Cashmere ranges, and in favourable situations eastward to Nepal. On the abrupt sides of the kirawas, or ancient lacustrine deposits in the valley, the beautiful wall-creeper may be frequently seen. Its gray plumage and the bright crimson patches on the wing serve to recognise it at once ; it is more plentiful, however, by the sides of streams, and in the more rocky and precipitous places towards the mountains. The gray-capped bunting is common in bushy places. Beside the roller, the gray-headed Indian jackdaw is occasionally seen about the larger towns, but it is nowhere common. A snake is often observed hunting after frogs in damp situations ; the largest I have seen measured  $5\frac{1}{2}$  feet in length. This species is evidently the same as Mr. Vigne mentions in his Travels ; it is known to the natives by the name of ajda, and it is a true python, and not the boa constrictor, as some travellers have named it, which it is needless to remark is not a native of Asia. A small adder like the common British viper infests the mountain pastures, and was very often observed coiled on footpaths ; the shickarees allege that it is very venomous. A small water-snake, about a foot in length, is common on the Wulur and other lakes.

We left Islamabad on the 22d of May by way of Martund



and Changos, firmly resolved, in spite of very discouraging reports of the state of the pass, to push our way across into the Wurdwun valley. We had sent a shickaree who knew the country to reconnoitre; but he always returned with most dismal accounts of continued falls of snow on the ranges northward. After leaving Changos the road winds up a densely-wooded valley, running eastward to the village of Nabug-ney, which is situated about five miles up the valley, and composed of a few log-houses. Again we found ourselves retrograding into spring; the foliage was just out on the walnut-trees, and the cuckoo's chant was heard all over the strath. I amused myself in the afternoon watching the golden-crested wren (*Regulus cristatus*) and crested black tit, hunting among the pine-branches, whilst numbers of flameous flycatchers were seen sporting overhead; but only for a few minutes, for they are restless little creatures, and never remain long in any situation. On the following day the journey was continued during a constant downpour of rain and sleet. The route lay up a densely-wooded valley. It was no use attempting to weather the storm, so after several hours' exposure we sought shelter in a log-house, and waited until afternoon, and then pushed on through the forest, up a gradual ascent, to a log-hut near the foot of the pass, generally used as a halting-place for travellers on their way to and from Wurdwun. A white-cheeked marten and silver fox were seen that day, and the deathlike stillness of the forest was now and then broken by the loud plaintive call of the black and yellow grosbeak (*Coccothraustes icteroides*). At dusk several woodcocks were seen crossing the clearing in the forest. We lighted a fire, and sat for hours anxiously looking for the baggage, which, however, did not arrive until near midnight. Dismal and cheerless was our condition; wet through,

without food all day, and fagged by a long and fatiguing march, the alpine solitude only broken by the loud howling of the-wind overhead, and the creaking of branches ; nor were our prospects promising, for after vain attempts to render the little shed waterproof, another downpour at 10 P.M. left us no alternative but to place our beds under the dripping roof, and resign ourselves to a hydropathic course of treatment for the remainder of the night.

The morning of the 27th of May was ushered in with drizzling showers and a cold and cutting wind, which blew with great force down the clearing in the forest. The thermometer was 36°. We, however, continued ascending, and soon found the pine gradually diminishing in size, and being replaced by stunted birch-trees and juniper. Great beds of snow were seen stretching across the summit of the pass, which was covered with a fresh coating. As we toiled up the steep ascent, wading to the knees, at times sinking to the arm-pits in old beds, snow began to fall ; first in occasional showers, and by the time we gained the top of the pass a regular storm set in, so as to obscure objects within a few yards. The worst, however, had to come. Our way led through a large valley surrounded with steep ridges, and across mountain-sides, where the guide had to trust entirely to chance, the footpaths being all obliterated. Accordingly we formed in line, treading in each other's steps, Halkett, Young, and myself leading, with the coolies and servants in the rear. It was an anxious march, for as we advanced the snow-storm increased, until our bewildered guide reported that he had lost all landmarks, and that we must trust to Providence. On we scrambled through the snow, until suddenly the storm ceased, and we looked around on a boundless waste of white, dotted here and there in the long distance by our ser-

vants toiling through the wreaths and drifts. The old shiek-aree Abel Khan, who had often crossed the pass, assured us he had never before attempted the passage under such desperate circumstances. Hill-tops and undulating ridges stretched far and wide, running either in continuous slopes, into yawning gulfs, or spreading out into long valleys. As he stood on the declivity of a spur, which ended abruptly at the brink of a precipice, the guide drew our attention to the marks of a recent struggle among the snow on its brink, as if some large object had slipped over into the abyss. His accustomed eye knew the signs too well, and, shaking his head, he informed us that one of the party that preceded us a few days before must have fallen over the precipice ; and his words proved true, for on our arrival at Unshun we found that a coolie had missed his footing and slipped over the precipice. In vain did the boldest and most expert of his party attempt to reach the unfortunate man. The most vigorous efforts failed from the steepness of the mountains and the great quantities of snow. At length, from a neighbouring cliff, the unfortunate man could be seen on the pinnacle of rock writhing in agony, and vultures hovering around him ; but no mortal efforts were of any avail, and he was left to his fate. When the weather moderated, and the snow had partially melted, another party attempted the ascent some weeks afterwards, but were equally unsuccessful ; neither from the cliff could they discern any traces of the poor man, not even a vulture hovered near. None of our party forgot the halt on that ridge, by the side of the gnarled old birch-tree. Here we held a council whether to push on or return ; the guide seemed indifferent ; so we decided to proceed, and once more pushed forward ; now creeping cautiously along a rocky ridge, then running as fast as the deepness of the snow would allow,

until we arrived at the confines of the forest after seven hours' constant toil. And glad we were to ease our aching eyes and limbs under the large boulder which had evidently served as a temporary rest for many a weary traveller. The rest of the descent was tolerably easy, until, debouching from the forest, we arrived at the banks of the Scinde river, and, looking up, saw the log huts of Unshun, a few hundred feet above us. There we found Bray and Captain Macandrew. The former had just returned from a search after bears, and was driven back by an attack of ague, from which he had been suffering in the plains, and which, strange to say, continued to molest him among the snow and cold of these arctic regions. We had scarcely finished the grateful repast prepared for us by our friends, when a sudden burst of wailing outside drew us away to witness a poor family plunged into grief on account of one of their number having been killed by a fall whilst felling trees in the mountains. We now saw our mistake in having crossed the pass at such a time of the year, and in face of the remonstrances of the natives; nor were our troubles over; for we now felt uneasy about our servants, the half of whom were still among the snow. At length the lost coolie made his appearance, bringing the intelligence that our tent had been abandoned in the middle of the pass. The night was bitterly cold, and Young and myself slept in a thin canvas tent belonging to our friends, on which the frost in the following morning lay thick and crisp, when we were aroused by the groans and sobs of the poor labourer's family next door. We started early in quest of bears, of which my companions killed two. Captain Macandrew brought me a specimen of the water-pheasant (*Parra sinensis*), which he shot on the river near the head of the valley. Wurdwun is divided into the upper and lower valley. The former is about eight miles

long and scarcely a mile in breadth. The mountains on either side are of great height, and very steep in certain places. The flanking ridges run south-east, and narrow the valley a little way below Unshun, where the sides become more wooded, and the Scinde river, from its various tributaries, swells into a magnificent mountain torrent, which empties itself finally into the Chenaub a little north of the Kishtewar. I do not think I have seen the deodar cedar attain a greater size than in Lower Wurdwun, where numbers are felled and floated down the Chenaub to India. I visited this district in 1854, two years after the events I am now recording, and spent several weeks among its wild alpine valleys, where I killed two ibexes and upwards of twenty brown bears. The Wurdwun river (called also Scinde) rises in a magnificent glacier at the top of the Surn valley. There are, besides, several smaller glaciers in various parts of the Wurdwun at Sochness. Between Unshun and Pambur there are snow-beds that may be said to be persistent, with moraines of various dimensions. I was led to suppose that the boulders and collections of rock in the valley around Pambur were the remnants of ancient glacial accumulations, as there is now no appearance of anything of the kind in these situations. The result of two measurements made the village of Unshun about 9000 feet above the level of the sea, or nearly 4000 above Serinuggur : this is perhaps nearly correct.

The poor villagers expressed great fears that, between our requirements and those of our other friends and their followers, we would eat them out of house and hold, their supplies being never more than sufficient for their own wants ; besides, from the lateness of the season, their cattle and sheep were now starving, and numerous carcasses lay about in the villages to be devoured by bears, dogs, and

carion-crows. The farmers assured us that the grass was above ground usually on the 20th of May. Poor wretched creatures, every one looked the very image of misery ; and whenever we entered into conversation with them, it was to hear the same old tale of woe and a dread of the future. Such apathy and cold mistrust of everything connected with their government and ruler were surely never seen in any race. It was painful to look on all the wretchedness around us, which, of course, the unseasonable weather aggravated. Most assuredly here was the saying true, that "winter lingering chills the lap of May."

The season was indeed late, for few bears had yet left their caves among the ice and snow. A few herds of ibexes, driven by the severity of the late storm, had been seen lower down, and several bara-singa frequented the pine-forests about. At last a thaw for three days melted nearly all the snow of the late storm, so that we were enabled to ascend some distance, and the bears were every day becoming more numerous. On the 1st of June, while searching along the side of a steep spur, I came unexpectedly on two of the largest he-bears I had ever seen ; they were within a few yards of me, feeding on the tender shoots of wild rhubarb. I fired at both, but they escaped. Another was seen feeding undisturbed about 700 yards to leeward, when suddenly the animal appeared to become restless, snuffing the air in various directions, until turning towards us, he continued moving his head from side to side, then suddenly scampered off to his cave among the inaccessible rocks. I have over and over again proved the want of acuteness of the sense of sight in these animals by following up the wind until within a few yards of a bear. Their sight is not strong, and they cannot observe objects very clearly at a hundred feet.

Young informed me that a bear killed by him on the top of a ridge rolled down some hundred feet, and was immediately surrounded by lammergeyers, vultures, and carrion-crows, all of which settled on the carcase, and commenced devouring it before his party could descend. At the beginning of the season the skins are covered with long thick hair and much woolly pileage, so that a rapacious bird can scarcely injure it except on the belly and head. Subsequently we seldom left our quarry many minutes before crows or vultures were seen circling aloft. The gyratory movement of flight, restricted to one spot, is always a signal to the others that something is near at hand. In the woods and among the decayed ferns we were constantly annoyed by a small tick, which almost buries itself in the skin and occasions great irritation.

Enormous avalanches were often seen dashing down the mountains, and carrying with them large masses of rock, uprooting trees, and pushing their way more than half-across the valley, causing thundering noises in the valleys and offshoots around. My shickaree took me to a shelf of rock to view the scene where Dr. Wray, of the 87th Regiment, was killed during the previous year. It was a narrow glen, running northwards, and surrounded by steep rugged precipices: a large bed of fallen snow covered the sides, and rose up gradually at the upper end to the peaks of the highest mountains. It had evidently slipped a few weeks before our arrival, and occupied the same position as that which entombed Dr. Wray. The officer and party above mentioned crossed into Wurdwun in April, when avalanches are most frequent. It seems they were watching the movements of a herd of ibexes from the stony bed of the stream in the bottom of the valley, when the constant rumbling

noise of falling masses of snow continued to increase, and on looking up the gorge a vast avalanche was seen bounding down towards them. Bewildered by the rapidity with which the huge mountain of snow seemed advancing, they ran from one side to another; but long before they could gain a place of safety, six of the party were buried in the avalanche. The remainder, stationed a little higher on the ridge, pushed upwards, and just escaped. The bodies were found six weeks afterwards, and close to that of one of the shickarees was a large ibex, which had been overwhelmed at the same time. When I revisited this glen in 1854, upon the same wild rocky precipices I observed a herd of from forty to fifty ibexes, the greater part feeding on a grassy slope low down, but on such an exposed position that I could not obtain a nearer approach than 200 yards. Although I missed a fine old male, the loss was compensated by the scene which followed, for scarcely had the echo of my rifle died away before every pinnacle and jutting prominence among the beetling cliffs overhead was alive with ibexes gazing down in wonder. One noble old patriarch, with great curving horns, stood on the uppermost and most projecting point. He was evidently the leader of the herd, for on satisfying himself of the danger, his loud whistle resounded through the glen, and as if by magic the multitude disappeared among the shattered rocks.

On the same occasion I proceeded to Assun, a wild secluded forest-glen northwards of Pambur. As there were no hamlets within many miles, it became necessary to reduce our establishment to the shickaree, two coolies, and a small tent, which we pitched in the depth of a pine-wood at the upper end of the valley, and close to a grass-clad slope running towards some very rugged and precipitous cliffs, where herds



of ibexes had been reputed to be residing. During the first night I was awoken by loud wailing cries in our immediate vicinity, and securing the rifle rushed out, when by the moonlight there appeared a large animal fluttering among the pine-tops above the tent. On discharging a barrel, a large flying squirrel dropped dead at my feet. It turned out to be the chestnut species (*Pteromys magnificus*), which the shickaree said was common in the district. Its fur was very soft, and of a deep chestnut colour above, with lower parts of a lighter hue, and the tail tipped with black. The specimen, a female, measured  $16\frac{1}{2}$  inches from head to tail; the latter was 20 inches in length. This flying squirrel is nocturnal in habits, secreting itself in hollows of decayed trees, and feeds on the tender shoots of the pine. Two were said to be the number of young born at one litter. In order to gain time, we took up a position on the following night on a cliff under beetling crags, to await the ibexes at daybreak, when they descended to feed on the grassy slope. As we lay rolled up in our rugs, about midnight a rush of earth and gravel awoke us, and we could hear the pattering of feet immediately above. This continued throughout the remainder of the night, and when the first dawn of day appeared, we silently reconnoitred and found an ibex and her kid lying in a hollow immediately above our resting-place. As we expected a herd, it was decided that the disturbers of our night's repose should be allowed to decamp; but our sudden appearance so electrified the old goat, that she gazed at us for a few seconds, and even permitted the shickaree to advance within a few yards before she sprang across a fissure and clambered with her kid up the face of an almost perpendicular scarp. We were cautiously picking our footsteps with alpenstock across the dangerous rents and slippery pinnacles, peering down into yawning gulfs

and projecting shelves below us, when suddenly Elli Shah's eagle eye caught sight of a herd of ibexes emerging in single file from a narrow chasm underneath, led on by two fine males, one of which was standing on a spiral-topped rock, with his four feet close together in an attitude of observation. Then the shickaree, seizing a handful of dried mat-grass, tossed it up in the air to ascertain how the wind blew, and removing his turban, replaced it by a skull-cap with the gravity of a judge about to deliver sentence, and gathering up his loins and taking the spare rifle, led the way down a hollow, until, peeping cautiously over the edge of the cliff, he suddenly turned towards me crouching behind him, and with a nod and grin of satisfaction, and beaming countenance, as much as to say "We have them now," retired that I might take his place. Resting the heavy Westley Richards on the ledge, and raising the 200-yard sight, I covered the fore shoulder of a fine male. Thud went the bullet on his side and up sprang the herd; one female strode out on a projecting rock, and whilst gazing downwards, the contents of the second barrel pierced her heart, and she sprang into mid-air and fell bumping from rock to rock down into the yawning abyss below. The male, desperately wounded, was seen following the herd, which in a few minutes disappeared among the peaks above, whilst we in wild excitement set off in hot pursuit of the former, which was discovered in a dying state, and despatched immediately. The disagreeable odour is common to the wild and tame goats, and is invariably strongest in the males. The flesh is dry and tough, without any remarkable savoury taste, unless that of young individuals. On our way down the mountain, I observed a flock of rose finches of a larger, different, and more brilliantly-coloured species than any I had before noted. Like the mountain-finches, they were feeding round the margin

of the melting snow, which appears to be a favourite resort, possibly for the purpose of obtaining the tender shoots and opening buds of plants. The forest around resounded the crowing of plach pheasants, and as we neared the tent I came suddenly on a huge brown bear intently feeding on a clearing. Although his head was directed towards me, he did not seem to notice us until we were within a few yards, and it was too late to make his escape. This individual, although not equal in dimensions to the largest killed by Halkett during my previous excursion, was seemingly one of the oldest isabella bears I had seen. The canine teeth had either been broken off or ground down with the molars to the level of the gums, and one or two of the latter were wanting in the upper jaw. The fur was a dark-brown with isabella-coloured tips, showing that the white varieties are not the result of age. The claws were unusually long, possibly from want of use, and perhaps the eyesight was also impaired from age. I noticed that in one reared by Young the eyes became affected with an ophthalmia which occasioned dimness of vision; and as the disease is known to attack tamed individuals, it may also be the case that the wild animal is occasionally similarly affected. The above evidently had taken up his abode in the glen for some time, for on the following day we traced his foot-marks like steps of stairs up the face of the sward to the cliffs where his den was situated. No doubt he had continued for years pursuing the even tenor of his way to the little stream below and grassy slopes, seldom roaming beyond a short distance from cover, where in all probability these patriarchs end their days, and, like the *Ursus spelæus* of old, enveloped in earthy and calcareous deposits, and thus preserve their remains for unreckoned ages. I well remember, when on our way from Wurdwun to Pambur, halting one day on the banks of the

Scinde in the middle of a vast forest-tract, and when my servants and shickaree were employed in stretching bear-skins, I took a rifle and entered the forest in quest of musk-deer. After penetrating the wilderness for some distance, it suddenly occurred to me that I had forgot the pocket-compass, and must now trust to chance in finding my way out. After hours spent in vain attempts to discover the river, night came on, and there seemed nothing for it but to wait patiently until morning. The eternal stillness, not even the murmur of the pine-tops broke the solitude; in vain I listened for the noise of the river and longed for morning; when by the first dawn of day I was off on my anxious journey—now rushing down slopes and making my way down hollows, expecting to strike the river at every turn; but all was in vain. Horrible feelings of going directly away from the river haunted me, and the cravings of hunger began to be urgent. At length, descending a densely-wooded slope of deodar, and gaining a valley and stream, which after following for upwards of an hour, I came suddenly on the Scinde, and discovered that I had struck the river five miles below my tent. When I reached my companions I was perfectly worn out from the exertion, fatigue, and anxiety; for, except a crust of bread and a few pieces of the flesh of a musk-deer I killed in the early morn, no food had passed my lips for upwards of thirty-two hours.

The ibex (*Capra himalayana*) frequents many of the lofty ranges of the western chains, and is known to the natives by the names "skeen" and "kail," which they apply indiscriminately in the districts of Aserung, Spiti, Kenowaur, the Northern Cashmere mountains, Ladakh, Chinese Tartary, and the Altai. It is not clear that the European ibex is a distinct species. There appears to be a variety in Ladakh (and specimens of the Siberian ibex I have examined possess

the same peculiarity) with shorter horns than the Himalayan. I am unable, however, to make out any further distinction. The average length of a full-grown Cashmere ibex's horns varies from 28 to 40 inches round the curve ; they sometimes, however, attain a much larger size. A pair found in an avalanche measured  $48\frac{1}{2}$  inches round the curve of each horn. Those of the female seldom exceed a foot and a half. Like the markhore, the horns of the ibex vary much both in curvature and dimensions. They generally taper to a point, and proceed upwards and backwards, with sometimes the tips directed downwards, almost touching the animal's back ; others diverge a good deal, and end abruptly, as in many European specimens. The age of the male may be generally ascertained by counting the fissures on the flat sides of the horns, and not the knobs in front, as some have supposed. The female gestates nine months, and has sometimes two kids, although one is the usual number. It is seldom that the rigors of even the severest winter drive the ibex into the lowland valleys. When forced from their accustomed haunts they seek the stunted pines at the limits of forests, and roam about in sheltered rocky situations, picking up moss, lichens, or nibbling the bark of trees. The shickarees say they are partial to clayey soils, which they lick, perhaps on account of the salts of soda, sodium, borax, etc., to which I have observed the bara-singa seem very partial. Their favourite food is a nardus, which grows in tufts at high elevations, and affords one of the means by which the adventurous hunter is enabled to preserve his footing on the dangerous and difficult situations frequented by these animals. During winter the ibex is thickly clad with hair and woolly pileage. The latter is finer than that of even the Ladakh goats, which afford the material for the shawls of Cashmere.

At the above season the ibex has a piebald appearance, from the light colour of the under-wool and hair of the outer coat, which, however, soon disappears as summer advances, and they begin to shed the woolly pile, when the colour changes to a uniform brown, with a dark line down the middle of the back. At that season they are rarely seen, and only met with on the summits of the craggy mountains. My own experience, and that of native sportsmen, show that the ibex has little sense of smell, and depends most on its sight and hearing. The iris is hazel, eye moderate and prominent, and so keen-sighted that I believe there is no quadruped excels it in that respect. The hunter soon becomes fully aware of this, and has to reconnoitre with the greatest tact before he manages to get within rifle-shot, but unless he is enabled to approach the herd from above, it is next to impossible to succeed by stalking from below upwards, as they always anticipate danger in that direction, and never expect any intruders from the region above them.

The leopards, panthers, wild-dog, and bearded vulture, are the common enemies of the ibex ; the latter preys on the kids only.

On the 1st of June I ascended a gorge running through the southern chain—one of the wildest-looking glens to be seen anywhere : its sides were formed by steep mountains, the tops covered with snow, and enormous drifts stretched down the hollows to the bottom, where they lay from 50 to 100 feet thick in many places. The northern exposure was dotted here and there with belts of pine-forest, where the snow still lay thick and hard, whilst on the opposite side the bare patches were beginning to look green, and the wild rhubarb was springing up. I had not proceeded far before two bears were seen nibbling a scanty fare on a hillside clearing. I

killed one outright, but the other, although desperately wounded, was on the point of making his escape, when by good fortune I managed to hit him again on a more fatal spot, when he rolled down the mountain-side, bounding from bank to bank with great violence, now rebounding into the air a huge revolving brown mass of hair, then tumbling and tossing over rocks, and down the evenest parts, until brought to a stand-still on the firm bed of snow at the bottom, some 700 feet below me. The steepness of the mountains of that glen surpassed any I had ever mounted. Our grass-shoes even were useless, and we were often obliged to make our way by digging steps across the declivities. The shickaree declared that he had seldom ventured on such dangerous places as were passed on that occasion, and I must say, although gifted with what is called "a good head," I often felt I could not afford to look below me when crossing the fearful chasms. The wild cry of the chough was often heard, and flocks were seen feeding by the sides of the melting snow; there were also numbers of the brown snow-finch flitting from one clearing to another, emitting their linnet-like chirp as the flock turned and twisted like snow-flakes in a stubble field. On the following day I revisited the glen, and after several fruitless attempts to circumvent a herd of ibexes among the inaccessible cliffs high up, we descended to the bare slopes, and killed three bears, one of which rolled down many hundred feet, but, strange to say, not a bone was broken in any of them, not even the skin injured. The shickaree killed a fine male ibex. Young had also been fortunate, for on my arrival at the tent I found him stretching the skins of four fine bears. In stalking these animals, especially in narrow gorges, the sportsman must be constantly on the out-look for sudden changes in currents of air; every gully may vary the direction, and often

whilst the wind is blowing up the main opening, other currents are pursuing an opposite course down the fissures from the snow above. We found only the backbones of the bears I had killed on the previous day, and at dusk as I turned the last winding of the glen, I could see the vultures and crows intently tearing the carcasses of those I killed in the forenoon. Seldom a day passed we did not observe flocks of the snow or imperial rock-pigeon (*Columba leuconota*) either feeding in the fields with the common rock-pigeon (*Columba livia*), or among the rocky parts, where it roosts and breeds. The resemblance of this species to varieties of the domestic race is striking, but I have not seen any decided variety of the snow-pigeon, which is about the size of the other, perhaps a little larger: the iris is yellow, forehead and part of neck soot-black, back of the neck, shoulders, and lesser wing coverts brownish-ash; back and part of rump soot-black; the tail moderate, and barred with white; lower parts white; legs red, and claws black.

At the village of Hafit we boiled the thermometer, and found after two trials, according to our rough mode of calculating, that the height might be about 9600. At the hamlet of Sochness, still higher up, it boiled at 194° Fahr., which made a difference of about 40° feet between the two; and as the altitude of the two places appeared so to the eye, the error may not have been very great. During the previous week the greater part of the snow on the sides of the valley had melted, the grass was springing up everywhere, and bears were plentiful, but circumstances compelled me to return to India, so I had no other alternative than to make the best of my way back. Halkett, tired of the wretchedness and discomfort of Wurdwun, made up his mind to accompany me as far as Serinuggur and wait our other friend, when they intended to



proceed to Ladakh and Tibet. Young was enthusiastic enough to remain another fortnight in hopes of procuring a good ibex head, and I must say, had not necessity compelled me to beat a retreat, in spite of the dismal prospect and want of proper food (the latter a serious matter to the hard-working hunter), I would have willingly braved all the difficulties and dangers with my friend. Our bag for the previous excursion, and to the breaking-up of our party, amounted to twenty-five bears, eight deer, and three musk-deer, each contributing about an equal share.

The brown or isabella bear of the Himalayas, if not a variety of, is certainly very closely allied to, that of Europe, northern Asia, and arctic America. The geographical distribution of these animals has not been fixed with any certainty. In Asia we find the bear of Siberia and the Altai called the brown bear (*U. arctos*), whilst our species is said to frequent the Himalayas only. There are evidently no very clear ideas on these points, and considering the facilities for observing their habits and haunts, it is to be greatly wondered at, more especially as we find Dr. Horsfield named the Himalayan bear *Ursus isabellinus*, from a single skin brought from Nepal; but I shall presently show that the colour varies so much in specimens that seldom two are exactly alike. The distribution of this brown bear on the Himalayas is not so general as that of the black species (*Helarctos tibetanus*), which is spread over the whole extent of the lesser ranges of the Indian Himalaya, whereas the brown bear is confined to districts, and prefers high and rugged mountains near the confines of perpetual snow, and nowhere is its fancy better gratified than among the noble chains which surround Cashmere, especially the secluded glens, such as the Wurdwun valley and its offshoots: there bears were at one time very

abundant, but every year shows a marked diminution in their numbers, so that, before long, we may expect to hear of the almost complete extermination of the species in the Cashmere ranges. The brown bear repairs during winter to caves in inaccessible rocks, where, forming a bed of decayed plants (usually ferns), it lies coiled up until spring ; when, as soon as the snow melts and vegetation appears, it stalks forth, lean, and frequently so hungry and voracious, that it has been seen to attack tame sheep, goats, and even to attempt to kill ponies ; but in point of choice it prefers vegetable to animal food. Young killed one feeding on the carcase of a Cashmere deer, which it had evidently surprised and killed when bringing forth young, as a new-dropped calf lay close by. During spring, and for some time after their first appearance, they seldom roam far from their winter abodes, and continue nibbling the tender shoots of rhubarb and such like. At that season they are fond of basking in the sun on beds of snow. The roots of the wild strawberry and a small white carrot, common in shady places, are much sought after by them. The soil in many places is ploughed up by their paws, and, like the wild boar, they dig also with their snouts. As summer advances they become very fat, and by the end of October, after feeding on wild apples, walnuts, and other fruits, greatly increase in size. It is of course then that their fat is of most value ; but although we preserved a great deal, I never could remove the rancid smell which sticks to the melted fat, even after otto of roses had been added. The fat on the back and on outer parts is preferred to that of the interior of the body, having less of the offensive train-oil-like smell. This bear is seldom seen on trees, and only frequents the woods and jungles during the fruit season. The fur in winter and spring is long, thick, and shaggy, but becomes

scantier and darker in colour as the season advances, so that towards autumn the under-fur disappears, and the white collar,\* scarcely perceptible before, becomes now very distinct, whilst the general colour of the whole coat is much darker. These changes have evidently been the causes of many of the so-called varieties of Himalayan bears mentioned by travellers, such as the white bear, the brown bear, and the white and brown; this latter appearance is mostly observed during midsummer, when the animal is shedding its winter fur, which hangs then in matted masses on its sides. I observed, as a general rule, that the bears, on their first appearance in spring, were much lighter in colour than in autumn, and occasionally an almost white variety was not uncommon. Many old males were very dark brown, but the colour is no certain sexual distinction, as Mr. Vigne imagined, neither does it determine age. Seldom more than one or two cubs are born at one litter. The she-bear generally appears with her young in spring, and from the size of the cubs, possibly their birth takes place either during hibernation or immediately afterwards. When caught young they are easily domesticated, and become harmless and playful, but always rough and overbearing; indeed the old bears are far from ferocious, and will seldom attack their pursuers unless severely wounded and brought to bay. The eyesight is by no means good, and were it not for the extraordinary acuteness of smell, there are few animals more stupid and less alert than the brown bear of the Himalayas.

The black bear (*Helarctos tibetanus*) is not found in the Wurdwun, or at such high elevations as the last. Its favourite haunts are in the woods and jungles of the lesser ranges, where

\* This gave rise to Cuvier's *Ursus collaris*, from a specimen of the brown bear of Europe procured in autumn.

it lies all day, to issue forth at nightfall and feed in fields and gardens. The black bear is not uncommon along the foot of the barrier-chains of Cashmere, and during the fruit season may be found in the valley, where its depredations among the apple, walnut, and mulberry trees are well known, and whole crops of Indian corn are sometimes completely destroyed by these unwelcome intruders. Although said to attack sheep at times, this species is eminently a vegetable feeder, and so expert in climbing trees that it may frequently be seen on the topmost branches, standing erect, and seizing the branches with its fore-paws. The shickarees have often told me that as the brown bear does not climb, he waits until the other has mounted, and then feeds on the fruit driven down by the black bear. The Tibet bear does not hibernate, and usually spends the winter in forests and dense jungles, feeding on acorns and roots. It is not partial to localities, and is constantly changing its beat. Individuals of both species, when old, often select a cave in some rocky ridge near a good feeding-ground, and continue for years to make it their headquarters, and from constantly treading in the same footprints form a regular flight of steps towards the retreat. The black bear is much bolder than the brown species, and has been known to attack man. I need not mention that the sloth bear (*Ursus labiatus*) of the plains of India is not found on the mountains.

On the 5th of June, accompanied by Halkett, I retraced my steps towards Serinuggur. Starting at an early hour, we arrived at the "great boulder" by 9 P.M., and after breakfasting, pushed upwards. The snow had disappeared, except on the summit of the pass, where it still lay hard and crisp. A few monal pheasants, scared at our approach, swept down the ravines in all their beauty, and roused the echoes around

by their wild cries. A few flocks of snow-pheasants were feeding on the bare parts. A colony of red marmots frequented the hollow between the mountains, and from the numbers of their burrows, seemed to have occupied the locality for many years. The day was very hot, and had we not worn goggles, our eyes must have suffered. Several of the followers were attacked with severe inflammation of the eyelids, which became greatly swollen ; but as soon as they had cleared the pass, and entered on the green valley of Nobug-Ney, the symptoms rapidly disappeared, and the following morning nearly all were fit to proceed with the party. The natives usually fix the leaves of the plane and other trees over their eyes in the form of a shade, which seems to answer very well, but they do not suffer to the extent of fresh arrivals. Our Indian servants were always the first to become affected and the last to get well. We cleared the pass by 5 P.M. and entered the forest, debouching into the fine open valley of Nobug-Ney. The advanced state of the vegetation during the interval struck us forcibly ; scarcely a fortnight had elapsed since the trees around the village of Nobug were just budding, and now all were dressed in their summer attire, offering a cheering contrast to the bare boughs we had left that day on the hill-sides of Wurdwun. On the following morning we marched through a low range of hills ; the day was warm, and the surrounding scenery of the most enchanting description. I filled my vasculum with many well-known plants ; amongst others we gathered *Plantago major*, *Tussilago farfara* (?) (I only found the leaf), common nettle, lady's mantle, common brake, and Dutch clover ; whilst scarlet and white dog-roses bloomed in all their beauty around us. The country was for the most part thickly clad with bush, alternating with more open tracts, being the usual description of

scenery in the eastern portion of the valley of Cashmere. The mountain-pipit (*Heterura-sylvana*), so plentiful on the Dugshai hills, was common among the grassy slopes below Nobug. The more I observed the habits of this little bird the more I was persuaded of its affinities to the titlarks. The wire-tailed swallow, Indian roller, and paradise flycatcher were all common. We turned out of our way to visit the celebrated sacred spring of Son-di Breri, which at that season, and for some weeks later, is said to ebb and flow three times a-day, but after waiting for some time, and not witnessing the phenomenon, we started off in quest of birds. Bernier and Vigne are undoubtedly correct in attributing the above to the melting of snow on the heights, and to some peculiarity in the construction of the channel of communication between the well and the melting-points, as the appearance ceases towards the end of July, when the snow on the neighbouring ranges has entirely disappeared. The well is situated in the limestone, and is fully 7 or 8 feet in depth by about double that in breadth. No doubt the noble springs of Ver Nag, Koker Nag, Atsibul, in the neighbourhood, are owing in part to the melting snow passing down fissures. Whilst waiting for the waters of Son-di Breri to flow, I shot a pretty blue warbler in the thicket of bush which covers the country around. The species I subsequently discovered to be the blue larvivora (*Larvivora cyanea*); it is by no means uncommon in Cashmere, although I never before or subsequently met with it on the lesser ranges. A restless little creature, incessantly hunting after larvæ and insects, it is about the size of the chiff-chaff: the upper parts are blue; a white streak passes over the eye; the cheeks are blue-black; lower parts are bright rufous; vent white; legs pale-brown and slender.

From Islamabad we proceeded to Kannibal, on the right

bank of the Jhelum, where we embarked in boats and dropt slowly down the river. The day was fine, and the scenery of the loveliest description : the old rustic bridges at Kannibal and Pantur ; the banks fringed with mulberry-trees, now loaded with their delicious fruit ; the calm, still afternoon ; the varying scene at every turn of the river, were all beautiful. We had a view of the old city on the way, but enjoyed a more favourable opportunity of examining its ruins during my subsequent visit to the valley. Although what remains is almost buried under a great mass of alluvium, portions of a temple and entrance-gate were traceable, besides fragments of walls laid bare by excavators. The great thickness of soil on the top of the city is scarcely to be accounted for by supposing it to be the accumulations of roof-tops. No doubt the severe earthquakes to which the valley has been subjected, even in historical times, have produced changes of level in many parts, as is attested by these monuments.

By 9 A.M. on the 8th of June our little craft glided quietly by the shady bank of the city gardens. From the various wooden houses peeped English faces, and when we jumped out opposite the Hurri-Sing-Ka-Bagh we could not help observing the great change which two months had produced. The Maharajah's agent informed us that forty Englishmen had arrived in Serinuggur, the greater number for sporting purposes.

Every day Goulab Singh had his troops drilled on a flat near the palace. The band was composed of divers uncouth-sounding horns and trumpets, and he would attempt on each occasion "God save the Queen," and what afterwards I found out was intended for "Bonaparte's March." The scene was simply ludicrous, but the wily prince fancied he was performing a great political duty before the English officers. I asked in vain

for a specimen of the "Cashmere Madeira wine" mentioned by Foster, but only obtained a most execrable compound which even the natives themselves agreed was by no means well-flavoured. My companion, doubting likewise the opinion of that very intelligent traveller regarding the fecundity of the women, made repeated inquiries, and, I believe, even visited the fish-market to ascertain if the latter article entered so extensively into the dietry of the female sex in Cashmere as to give cause for Foster attributing their prolificness to eating fish in great quantities. The facts, however, were all in favour of a decided decrease in the productiveness of the fair sex, and that both the men and women of Cashmere had fallen off since 1783, when Foster wandered over the Happy Valley.

I started early with my friend, Captain Rattray, 2d Regiment Native Infantry, to visit the far-famed temple of Solomon,\* which stands on the summit of a little hill to the east of the city. The chief object of Captain R.'s visit was to settle some points connected with a panoramic sketch of the valley at which he was then employed, for to a name already established as a landscape-painter, from his beautiful portfolio of Afghan scenery executed during the disastrous campaign in that country in 1841, he was at the time designing another series of sketches, chiefly of Cashmere scenery.

It appears strange, from the length of time Cashmere has been accessible to Europeans, especially by its proximity to India; that no painter of eminence has immortalised its magnificent grandeur and beauty; but it is the same everywhere on the Himalaya, as Humboldt truly remarks—"He who with a keen appreciation of the beauties

Height 6263 feet above the level of the sea.



of nature, manifested in the mountains, rivers, and forest-glades, has himself travelled over the torrid zone, and seen the luxuriance and diversity of vegetation, not only on the cultivated sea-coasts, but on the declivities of the snow-covered Andes, the Himalaya or the Nilgherry mountains of Mysore, -or in the primitive forests and the network of rivers lying between the Orinoco and the Amazon, can alone feel what an inexhaustible treasure remains still unopened by the landscape-painter between the tropics in both continents" (*Cosmos*).

We could scarcely have chosen a better morning for our excursion. The sun was gilding the snow-covered peaks of the northern Pinjal as we commenced the ascent, and by the time we had gained the temple, his rays, in one flood of golden light, had illuminated half the valley, leaving the southern portion and the slopes of the Peer Pinjal yet intact. Seldom does he shine on more varied and beautiful scenery, for in all my wanderings before and since I have never witnessed its equal. There lay the capital at our feet, half-hidden among clusters of poplars, chunars, and forest trees—the Dul lake, washing the western base of the Tukt-i-Salaman, stretched westward with all its ever-changing forms. On the placid waters of the lake numerous skiffs shot either rapidly along, or threaded their way through a labyrinth of weeds, diversified by the countless floating gardens, and the Isle of Chunars, with its noble plane-trees. The shalimar and pleasure-grounds of the Delhi emperors, now faded, and fast passing into the wild jungle around them, covered portions of the northern bank of the lake. Huri Purbet, like a fortress which had undergone a siege, its walls crumbling into decay, stood on the side of a spur overlooking a scene which for loveliness and grandeur has scarcely an equal. So perfect seemed both

the natural and artificial portions of the panorama, so faintly blending with each other, and yet so grand, that the eye in one sweep passed over most perfect pictures of lake and mountain scenery. Towards the city stretched a noble avenue of poplars, upwards of a mile in length, and straight as arrows ; whilst away towards the east rich pastures and fields teemed with grain ; villages nestled in clusters of trees, which in rows were seen fringing the banks of the classical Hydaspes, that like a huge snake twisted through the plain. Then, last of the many beauties, rose those grand and noble mountains, encircling the whole panorama, and shielding the paradise from the northern blasts, whilst from their rugged sides dashed a thousand rills to fertilise and beautify its soil. On the palace parade-ground Goulab Singh's soldiers were at drill—a curious-looking, ill-dressed, and badly-accountred mob. The loud discordant bray of their instruments grated harshly on our ears as they marched past in review order, before the chief. We thought, would the British soldier ever march past on that same plain ? and what a happy day for Cashmere it would be when the old flag of England waved on the ramparts of Serinuggur ! We paid a visit to the Isle of Chuhars, and sat in Nourmahal's bower, now only traceable by a few hewn stones. In the fragment of a wall was the tablet erected by the travellers Vigne, Henderson, and Baron Hugel to commemorate their meeting in the valley some fifteen years previously. The inscription was much defaced ; and when I revisited the island two years afterwards the entire slab had been removed, possibly thrown into the lake.

## CHAPTER XII.

Return to Punjaub—River Scenery, and its Ornithology—Day Haze or Mist—Lakes of Cashmere—Visit to the Heir-Apparent—A Frightful Accident—Maury's Theory of Monsoons—Return to the Valley—Start for Ladakh—Scenery—Bultul Pass—Marmots—Tartars—Birds—Plants—Scenery—Buddhist Temples—Birds—Tibetan Magpie, its Allies—Redstarts—Familiar Birds—Discovery of a New Species of Mountain Finch—Lameru—Jolly Lama Priests—Wild Sheep—Natives—Leh—Birds—Yak, and Wild Quadrupeds of the Region—Tame Animals—Tang-Lang Pass—Plains of Rupshoo—Nomadic Life—Oppressive Sensations at High Elevations—The Dog of Tibet—Salt Lakes and Wild Fowl—Wild Ass—Burrel, or Wild Sheep—The *Ovis ammon*—Chaits—Tibetan Antelope—Sudden Variations of Temperature—Tibetan Sand Grouse—Tailless Rat or Lagomys—Alpine Hare—Tibet Ravine Deer—Hotch-Potch—Sulphur Mines—Chumouraree Lake—Wilderness—Birds—Tibet Partridge—Ibex.

On the 11th of June, with many regrets, I turned my steps towards Rawul Pindee, Halkett accompanying me as far as Baramula. The day was hot, but our boats were well thatched, and we sat under the chopper all day, admiring the scenery as we dropped down the river. The skeletons in their cages at the entrance to the city looked if anything more grim than before. The mid-day haze, so often observed on the plains of India, was very apparent on the surrounding mountains. In the Punjaub it makes its appearance about nine A.M. like a slight mist. I have seen the clearest of mornings become in an hour so hazy that objects then distinctly visible were shrouded in gloom by mid-day. By some authorities emanations from the soil are said to be the cause, whilst certain

electrical changes are put down by others ; but I am not aware that either afford a correct explanation of this somewhat singular phenomenon. From the lowness of the river's banks we were enabled to view the surrounding scenery to advantage. I strolled along the sides of the marshes, and killed a few castaneous ducks. This species and the mallard remain in the valley during the summer months, and breed, when geese and other water-fowl are rearing their young on the Tartarian lakes, from whence they return in November. We passed the pretty little village of Shadepoor on the left bank, and anchored close to Simbul, which is a little farther down ; from thence paid a flying visit to the lake of Manasa Bul, one of the most beautiful tarns in Cashmere. On its banks were the remains of the once noble palace and gardens of the famous Nur Jehan. The clearness of the water, and the grandeur of the mountain scenery northwards, render this a most perfect little picture of Cashmere beauty. We pushed on the following morning towards Sopur, through the Wulur Lake, halting to take luncheon on its little island, where the remains of one of the ancient temples of the Martund description were observed. There was a monotonous stillness on the placid waters more calculated to weary than entertain ; the immense sheet, not even ruffled by a breath of wind, and without one living object on its surface save the little water-snakes, about a foot in length. This active creature, with head a little elevated, propelled itself by twisting, and dived immediately we came near. The contrast is great between the unruffled smoothness and absence of birds during the summer months and the busy scene in November, when wild fowl crowd the lake. Then gusts, sudden gales, and hurricanes make the navigation much dreaded by the boatmen, who will seldom venture to cross unless the weather is fine, preferring

to proceed by the Shadepoor Canal, which opens into the Jhelum near Sopur. The lotus and singara-nut grow in abundance around the shallow parts on its southern side, where rushes and reeds offer excellent retreats for rails and water-hens. On our arrival at Sopur, we paid a visit to the heir-apparent, Prince Rhunbeer, who was living in the dirty old fort on the river. He received us with all the *suaviter in modo* of an Oriental, and with apparent gravity talked of his being our humble, obedient servant, and that his father's country was ours, and we might just do what we chose with anything or any one in his dominions. He wanted the cunning, restless eye of his father, and for a youth of twenty-four he looked ten years older ; he had a sallow, dissipated, but handsome countenance, which appeared to advantage in a helmet sort of head-dress, surrounded by a turban with a plume of heron's feathers. The nobles of the court all wore shields and swords, and the guard a nondescript uniform, with flint muskets. Our interview was of short duration, for the Prince tired us out with his fulsome compliments, which came forth with a drawling voice as if talking was a very trying effort to his Royal Highness. We were amused at his stating that he had often hunted ibex and bears, and could scarcely retain a courtly gravity when we conceived the Prince in the tights generally worn by the Sikh's nobles clambering up the bare rocks of Wurdwun. I subsequently discovered he did once "go a-shooting," and after an attempt to mount a hill, was finally borne up on the backs of his followers, and that he actually fired at a bear and missed it. This was the first and last of Rhunbeer Singh's hunting expeditions. After several extra compliments on both sides we withdrew, the guard at the door nearly knocking us down by their violent attempts to "turn out" and

“present arms” to the “Sab-Logues.” We entered our boat at the Sopur log-bridge at 2 P.M., and continued moving slowly down the stream, arriving at Baramula at dusk. The palms\* mentioned by Bernier seem to have disappeared : not one was observed. Several dwarf species are common on the ranges near the plains of the Punjaub, but never to my particular inquiries was a palm-tree seen in the valley.

The want of loyalty on the part of the inhabitants of Baramula towards the young heir to the throne was very striking. With the exception of the soldiery, a great majority of the poorer classes fled into the mountains on the arrival of his Royal Highness. The reason, we were informed, was partly owing to the imperial decree of the previous year; by which several hundred coolies were pressed for the purpose of carrying the baggage of the ill-fated army that left more than half its numbers before Chulas, in the unsuccessful raid against the rajah of that country. This state visit was evidently made with the view of restoring public confidence, but the wretched inhabitants had been so often called on to give their services to the state on short notice and no pay, that they had little trust in any demonstrations of royal affection. I have seen Goulab Singh’s palkee (litter) surrounded by numbers of petitioners, all eager to gain an audience, and begging most earnestly to be allowed to tell their grievances ; indeed it was seldom he went abroad or made a tour through the provinces that he was not followed by a motley crowd of sufferers pressing forward to solicit a hearing for some alleged injustice on the part of himself or his dependants. I recollect a scene of this description immediately on the Maharajah landing at

\* “When day had hid his sultry flame  
Behind the palms of Baramoule.”

*Lalla Rookh.*

Islamabad, when several respectable well-dressed zemindars were most unmercifully beaten by the sepoy's of his guard for attempting to follow the royal palkee. The Prince's arrival at Baramula was celebrated by the usual marks of regal munificence. A feast was given to all the dirty fakirs within miles, when half-naked wretches, like as many carrion crows, usually at hand on such occasions, now flocked in from all quarters, and were seen seated around fires, gorging on rice and curry, whilst hundreds of the labouring classes were skulking dinnerless among the rocks in the vicinity. It was state policy, however, to propitiate the fakirs.

I now, to use a South African expression, began "to make tracks homewards." Accordingly after once more enjoying the magnificent scenery of the Baramula Pass, I was descending the pathway which debouches on the Uri plateau, when I came on a handsome native woman lying by the wayside, insensible, and bleeding from several wounds on the head and other parts of her body. Beside her was a small bundle of clothing, and her slippers, which were placed on the edge of a precipice some 200 feet above the Jhelum, whose waters were dashing furiously below us. I had scarcely time to look around before her husband, with an infant in his arms, came out of the bush, and informed us in the most indifferent manner that she had attempted suicide by leaping from the cliff, and that he had just carried her up from below, where he found her lying with her head half-immersed in water by the rocky side of the river. How she had not been dashed to pieces I could not understand. The bleeding vessels were stanch'd as well as the circumstances would allow, and we had her conveyed to the nearest hut, where I dressed her wounds and put up two fractures of the bones of the left arm. I was strongly apprehensive of some foul play,

and after the poor woman had been placed on straw and made as comfortable as the hut would allow, I took her husband aside, and by the aid of a Sikh sepoy of my guard, interrogated him respecting the circumstances. The husband's story was that she had been in love with a soldier at Noushera, and in consequence he had reproved her, and was on the way to take up his residence at another village, when she preceded him and his child for the alleged purpose of preparing their dinner before their arrival at Uri, and that his attention was directed to the occurrence by the appearance of her bundle and slippers on the edge of the precipice. He told the story with such *sang froid*, and looked altogether so much the villain, that I had great misgivings as to his telling me the truth. My servants, after making further inquiries, were of the same opinion, and that he had pushed her over the cliff and placed the shoes and bundle in the above situation in order to make it appear that the act was her own doing. The poor woman recovered so far by the following morning as to be able to recognise her infant, but I had no time to wait, and when I passed Uri a week afterwards I heard that she died on the day after my departure. When the circumstances of the case were mentioned to the chief official at Uri Fort he shrugged his shoulders, and in true Indian pathos exclaimed, "What can I do, she was his wife?"—as much as to say that matrimonial differences of whatever description were beyond his jurisdiction. Pilgrims on their way to the caves of Umer-nath passed us in parties constantly, and a number of these nomads encamped under a mulberry-tree close to our bivouac at Uri. They informed us that they had been wandering all over India for the last four years, visiting sacred shrines, and had come direct from Ajmeer, in the centre of Hindostan, to pay their respects to their gods in the gypsum cave of Umer-



nath. A few of their women were exceedingly beautiful ; the slender forms, dark-brown faces, black eyes, and long flowing hair of the girls were very characteristic of Zingari descent. They spoke Hindostanee, but the conversation between themselves was carried on in a dialect said to be peculiar to the gipsies of India. At night they lay in a circle under a tree, where they spread mats, and placed their goats, goods, and chattels in the centre. When I awoke at 5 A.M. the following morning they had gone on their pilgrimage. At Chacar I was met by a courier with a letter informing me that I had been granted three months' additional leave of absence. Accordingly, with a light heart, we turned our faces once more towards Cashmere, and by forced marches were enabled to rejoin Young and Halkett at Serinuggur on the 25th of June, in time to make preparations for the expedition to Ladakh. The monsoon had fairly set in, and the clouds we observed before banking up in large dark masses on the tops of the mountains were now showering down their contents on the valley. Scarcely a day passed without rain, which more or less confined us to our log abodes. I found a rest requisite on my own part after the heat and fatigue of the previous fortnight, and was only too glad to avail myself of a week's rest among the society of many excellent friends ; amongst others, that of Major M'Gregor, government political agent, and his kind lady. Young joined from Wurdwun with a bag of twenty-seven bear-skins, and by dint of his indefatigable industry and perseverance had managed to outnumber every one in hunting trophies.

The theory of monsoons has been so ably discussed by Dr. Maury that one need have no hesitation in quoting his authority on this subject. He says—"The south-east winds from the Indian ocean and the Arabian sea, on

the other side of Hindostan (which would be, of course, the south-west wind and south-west monsoon), after deluging the Ghauts, proceed as dry winds to the Himalaya, in crossing which they are subjected to a lower temperature than that to which they were exposed in crossing the Ghauts. Here they drop some of their moisture in the shape of snow and rain, and then pass over into the thirsty lands beyond with scarcely enough rain in them to even make a cloud. Thence they descend into the upper air, there to become counter-currents in the general system of atmospheric circulation." As before noticed, in this way the differences can be accounted for in the climate and appearance of the Cashmere mountains and those of the rainless and cloudless regions of Ladakh and Chinese Tartary. On the 1st of July 1852 we witnessed a total eclipse of the moon, which the Cashmerees attributed to a huge animal, somewhat in the shape of a bird, interposing its body between the luminary and the earth. On the occasion in question they were too glad to indulge their superstitious ideas with a sort of hope that, as more Europeans were in the valley than had visited it before, it was an omen of the long-cherished wish, that before another year the English would be masters of their country. On the following day we commenced our march towards Ladakh by the Shalimar gardens and up the valley of the Scinde river. The scenery was enchanting, and so home-like, that I do not wonder Mr. Vigne and every English traveller should rave about the resemblance. He says—"As we advanced, the scenery increased in beauty ; the river becomes larger ; the verdant and forest-clad mountains are indented by straths and defiles ; smaller valleys send down their tributary streamlets to the waters of the Scinde ; here and there were seen the cottages and walnut-

trees of a retired village, or the thatched roofs of an English-looking farm-house would peep out where the forest was the least dense. We travelled forward, threading our way through a natural plantation of walnut, peach, apricot, mulberry, plum, apple, pear, and other trees, that rose upon the mountain-side with surpassing beauty and extent." Our third day's march was to the village of Khund, situated at the entrance of one of the great gorges, and near the Scinde, the waters of which are white from the light-coloured clay forming its bed and banks. Patches of snow still covered the tops of the highest mountains in the neighbourhood, and seldom a day passed without a shower. I employed a few leisure hours at Khund in exploring the fine wooded valley, having been detained there a day from want of coolies. I was struck with the absence of birds in this dense mountain solitude; indeed the district seemed almost deserted by living beings of any sort. I wandered over miles of forest and jungle without seeing anything beyond the orange-coloured bullfinch already noticed and the trail of a few bears. A small black scorpion was very common under stones, and upwards of twenty were killed by our servants in clearing a little spot sufficient for the accommodation of our tents. As we journeyed on, the valley of the Scinde became narrower, and the wooded scenery gave place to grassy hillsides or rocky and precipitous gorges, now and then presenting a patch of forest or jungle. At the little guard-room in the defile of Guggen Ghere we rested at mid-day before ascending the rocky bed of the river, which was half-choked by huge masses of rock and beds of snow; the latter sloping down from the surrounding mountains at a low angle. Many in the higher regions would have become glaciers but for that reason; consequently they totally disappear before the end of

August. We encamped at dusk on a grassy glade surrounded by vast towering and perpendicular mountains, several of which were covered with snow. The scenery was magnificent, especially towards sunset, when their snowy tops looked one mass of red and golden yellow. We had now reached the Sonamurg, or Valley of Golden Flowers, one of the chief pasture-lands, and capable of affording every advantage in the way of rearing cattle or horses. Herds of both were seen roaming over the vast savannahs, which teemed with a countless variety of plants—

“Billowy bays of grass ever rolling in shadow and sunshine.”

Among the gorgeous flora of Sonamurg I recognised the gigantic umbelliferous *Ferula asafoetida*, which furnishes the well-known medicine of that name. Whether this species is identical with the celebrated Cyrenic plant, the *σιλφιων* of the Greeks, I cannot say, nor am I certain that it is the same as the *Prangos pabularia* mentioned in Moorcroft's *Travels*. The wild onion and garlic were abundant, and the handsome shining-leaved thistle-like *Mima persica* was common. The *Rheum emodi* and two other species of rhubarb (*webbianum et speciforme*?) were often observed. We were constantly meeting with gangs of good-natured Ladakees on their way to Cashmere with loads of merchandise, carried by their half-bred yaks. As we proceeded up the valley the vegetation began to decrease, and by the afternoon of the 6th of July, when we arrived at the foot of the Bultul pass, the fair scenery of the previous days was entirely changed. We were now about to cross the great watershed, and a few hours would bring us into the rainless desert regions of Ladakh. The sun was declining as we commenced the ascent, and by the time we arrived at the summit of the pass had dipped

behind the lofty peaks of Haramuk. We had gained an elevation of 10,500 feet above the level of the sea, and were now in the region of snow. All was desolation, and a cold cutting wind blew in gusts down the narrow mountain-gorges, which were filled with ice. In vain we attempted to peer through the gloom of the rapidly-advancing night for our baggage and servants ; but darkness came on, and found us still expectant on the mountain-top. We had descended the northern face of the ridge to a clump of stunted birch in search of a level spot on which to pitch the tents, when all at once, in the dismal solitude around, screams burst out of the ground ; louder and louder became the cries ; the rocks sent back the sounds ; we stood in astonishment, wondering what animal could be producing such unearthly noises, and various were our surmises, until one of our servants arrived and informed us we were in the centre of a colony of red marmots (*Arctomys tibetanus*). The "drun," as the red marmot is named by the natives of these regions, is confined to certain situations at high altitudes, and prefers fertile and secluded valleys, where vegetation returns rapidly and is luxuriant. There this active creature spends the summer months, surrounded by a plentiful supply of food, until again forced to its burrow by the cold and snow of winter. Their excavations are formed on gentle slopes or under stones and rocks, where they delight to sit erect and scream. Often the burrows are scattered over the valley, where loud wailing cries may be heard for miles along the mountain-sides. It is seldom they wander for any distance from their habitations, and usually take up a position close to the entrances, darting thereinto on the approach of danger. They frequently leap during progression, at times using their tails to assist them. Wild garlic, onions, and particularly a species of the former with yellow flowers,

constitute their favourite food, which they store up in autumn. The hibernation lasts from four to five months, or even longer when the snow lies for any lengthened period. The bearded vulture and larger eagles are among their chief enemies. I have seen the former bear off a marmot with great ease. The total length of an adult drun is from  $2\frac{3}{4}$  to 3 feet; the colour, chestnut, with black splashes on the back and hips. It is seldom met with under 8000 above the level of the sea.

After a dismal night's bivouac on the Bultul Pass, we rose at 6 A.M. on the following morning, July 7th, when the thermometer stood at  $36^{\circ}$  Fahr., and after breakfast continued our journey over a large glacier, at the further end of which a stream of some magnitude gushed forth, and in conjunction with other tributaries formed the Dras, a fine river flowing northwards. The scenery was desolate and dreary beyond belief; the mountains rugged and steep, with little verdure on their sides, and that confined to the lowest levels—to wit, narrow valleys and banks of streams. All actual vegetation had disappeared except a few clumps of birches, from which the well-known 'chaunt of the cuckoo resounded. Several flocks of goldfinches, the black redstart and white-fronted species, sand-martin, and the roseate finch, were seen. Marmots in numbers continued their wailing calls all day at broken intervals, and, like as many jacks in boxes, popped into their holes as we approached. The plain of Minimurg, at the foot of the pass, was covered with wild onions; besides which the Salep orchis, with its large yellow flowers, was not uncommon. The Dras river, now a goodly stream, flowed down the valley, the sides of which were marked by descending glaciers and beds of snow fast melting round their dank margins. As usual in these situations, the pretty purple and rose-coloured primroses were peeping up, and a third species,

perhaps *Primula elliptica*. The short-stemmed rhubarb, with rough leaves (*Rheum mucroftii*) was common ; also the *R. emodi* and another species. The mountains were mostly composed of schistose rocks and a gray limestone. The boulders of the latter, which had fallen down on the banks of the Dras, had a polished or glazed appearance like trap, but doubtless this was owing to the action of the weather. It was evident we had now fairly passed the limits of the monsoon, for not a cloud was visible, and the sky was of that deep impenetrable blue characteristic of this region and high elevations. The village of Paudras is situate on a rocky eminence near the river, and is composed of small flat-roofed hovels scarcely distinguishable from the heaps of stones on the mountain-sides. The Caucasian type of countenance had now disappeared, and given place to a coarse Tartar visage. The women were in general very ugly, their dress consisting of a round pork-pie cap of black material, fitting close to the head, a thick woollen gown reaching midway beyond their knees, with their legs wrapped in bandages of cloth, and boots, reaching above the ankles, of the same material, with under-surfaces covered with leather. The females muffle up in piles of clothing, and both sexes frequently clad themselves in sheep and goat skins with the woolly side inwards. The little fort of Dras is situate on the river, and is the only respectable-looking building in the valley ; the native dwellings being, as already stated, small square-roofed hovels, with only a door, and not above 8 feet in height. They are built of stone, and crowded together on ridges and wherever there is security from avalanches, which occasionally overwhelm the valleys during winter and at the melting of the snow in spring. The raven of Ladakh is a larger bird than that of the Northern Punjab, owing most likely to the climate being better adapted to its habits and

constitution. I scarcely think there are sufficient grounds to consider this species distinct from *C. corax*, the differences in what Mr. Hodgson calls this variety (*C. tibetanus*) being only in a somewhat larger size, the wing measuring  $18\frac{1}{2}$  inches, tail  $11\frac{1}{2}$ , and the bill to gape 3 inches. The common sparrow of Ladakh differs in no respect from *P. domestica*. The pied and gray wagtails, hoopoe, brown mountain finch (*M. nemoricola*)—perhaps the gelinok of Moorcroft—and blue rock-pigeon, were observed in the valley of the Dras associated with a flock of the latter. I observed what I took to be a pied variety, but Mr. F. Moore, of the Indian Museum, London, has since proved it to be the *Columba rupestris* of Pallas.\* It is easily recognised from the other, and its congener, the *C. leuconota*, by the white band across the middle of the tail and the bluish-white of the belly and lower parts.

The long-billed variety of the blue thrush is common among the rocks ; it would seem this is a permanent race of *Petrocincla cyanea*, and peculiar to the more northern regions, inasmuch as all I procured in Ladakh and Cashmere belonged to the above variety. The song-lark (*A. arvensis*) follows up the valleys to the limits of verdure. I saw one at Dras, but not subsequently. I do not think it visits Ladakh.

Our next day's march was to the village of Kirboo, about eighteen English miles. On the roadside, near Dras river, were two erect stone pillars, with figures and characters, apparently Chinese ; but we afterwards discovered that both were Buddhist. The scenery, as usual, was exceedingly wild, the mountains being perfectly bare, and with steep sides. The Dras river, a powerful stream, was seen dashing furiously through a narrow channel, more or less choked up

\* See *Proc. Zool. Soc. of London*, and Pallas' *Zoogr. Russo-Asiat.* p. 560, plate 35.



with fallen masses of rock, which (as before observed) were covered with glazed incrustation, owing to the action of the weather, which had formed a stalagmitic deposit on their surface. Boulders of granite, with hornblende predominating, were also often observed. It was during this day's march that I met with the magpie for the first time in Asia, and quite unexpectedly, for, judging from former experience, the locality seemed unsuited to its habits ; but nevertheless, here it is found, and the Tibetan magpie prefers the bleak and sterile regions of Ladakh and Tibet to the wooded and cultivated tract of Cashmere and the Lower Himalayas. Mr. Hodgson has separated this species from the British bird, as he has done ravens of India and the Himalayas, and, to my mind, on very doubtful grounds, inasmuch as he makes no allowance whatever for climate and locality ; and because the Tibetan magpie is only a little larger, and has not so much white on the quills, he has given it another name ; consequently, reviewing the magpies of Europe and Asia, we find a host of different species, all so closely similar, both in the regions they frequent and in their plumage, that unless we draw very fine distinctions, I see no possibility of separating one from the other.

I conceive the term *race* or *variety* as applicable to the following, but that they are what naturalists usually consider distinct species, I cannot allow. The *Pica bactriana* is acknowledged by Mr. Blyth to be a variety or race of the European magpie ; also the Chinese variety he considers almost identical. The Bootan bird is at present shown to be the same as the *P. megaloptera*, and that we are now considering. It is a great pity, where a species is found somewhat different from a given type, that we should not allow it a place among the *varieties* of that type and species, until such time as proper

comparison has been instituted between them. This rage for "species-making" is not confined solely to cabinet naturalists, but I regret to think, for the sake of science, that rather than be behind-hand, or that another should make the discovery, it is the custom with even many of our best-known field ornithologists to give a separate specific name to every individual that differs in the slightest degree from another.

The common and allied swifts (*C. apus et affinis*), and a little white-rumped martin with a forked tail, and apparently like *C. urbica*, were often seen among the rocky cliffs on the banks of the Dras. I did not procure specimens of the latter, and cannot therefore vouch for any differences between it and the *C. cashmeriensis*, noticed elsewhere. The white-capped redstart, common on the more southern rivers and streams, although occasionally observed, was becoming every day more rare. I mention this as being the last occasion on which I observed it during my journey to the lakes of Ladakh. The chestnut-bellied redstart evidently takes its place on the rivers and streams of Central Asia.

The little fort of Kargil is situate near the junction of the Zakut and Kartse, which flow into the Dras a short way to the north of Kargil. The scenery of this day's march was very wild. Several peaks of great height were observed; that of Karstee, 14,000 feet, was seen rising in majestic grandeur to the south of our route. Opposite Kargil is the village of Sileste, with its pretty little terraced fields, irrigated by a canal which runs along the side of the hill. A few willows and poplars, and a species of tamarisk, with abundance of red roses, were observed; also wild currants, the fruit of which was unripe, and, I believe, is never fit for use, being dry and very acid. The Kartse is crossed by a bridge near the above village, and passing over a broad valley, you come to the

banks of the Zakut, which has to be crossed and recrossed several times. This latter stream is also called the Buchee by the natives, who do not appear to know it by the name given in maps. A small stream called Tafee joins the Buchee near the picturesque-looking village of Shergol, situated on an eminence overlooking a somewhat broad valley. The chief lion of Shergol is its strange Lama temple, formed in the face of a rock above the village. The mountains appeared to consist chiefly of granite, and a conglomerate of a porphyritic structure. I shot a kestrel, and Young saw several chuckore. The black-throated wheatear was common in stony places. The carrion-crow was frequently observed, and the lark-toed wagtail (*Budytes citreola*) in the irrigated fields. The pretty little red-fronted finch (*Metoponia pusilla*, Pall.) is a tenant of waste places, and usually seen singly or in small flocks feeding on the seeds of a species of wormwood, on which goldfinches, house-sparrows, and one or other of the roseate grosbeaks also feed. This finch is easily recognised by its small size, a red spot on the forehead, and yellowish-brown of the upper parts; the females and young are darker in plumage. Its song is sweet and melodious, and, in consequence, it is in great request as a cage-bird in the Punjaub, to which it is brought from Afghanistan. On the Buchee I killed a European dipper (*Cinclus aquaticus*). The houses in the villages are built as close together as possible, even one on the top of the other, in consequence of occasional avalanches, and very rigorous winters, that shut out all communication with their neighbours. These arrangements as to crowding, in a sanitary point of view, bid defiance to all ideas of ventilation and cubic space; and we found, on inquiry, that as in more civilised life, death often stalks silently through these villages, and num-

bers of their inhabitants pine away and die, no one knows how. Severe epidemics have also visited these people, and great mortality took place some years before our visit from smallpox, which has raged more than once in Ladakh, and committed terrible havoc. Avalanches destroy whole colonies, so that ruined and deserted villages are often observed, although not all resulting from this cause alone; hence, for safety, commanding situations are chosen along ridges or projecting cliffs. The pagoda-shaped buildings were common, and we passed a colossal figure, 15 feet in height, cut out of the solid rock. In the desolate-looking country around I discovered a new species of mountain-finch, which we subsequently found to be pretty common around the salt and fresh water lakes. It resembles the *M. gebleri*, but it is larger; head and back are grayish-ash, upper tail-coverts white, primaries black, tips and inner webs of the secondaries white (the two last having both webs white), chin and throat pale gray (below white), auxiliary feathers pure white. In habits this finch resembles the true larks; it is generally seen in flocks, and builds in the long dykes (*mani*), where I have found its nest of dried grass.

The alpine chough (*Pyrrhocorax alpinus*) was seen here, and subsequently a flock was observed feeding on mulberries near the village of Khaletse. This species is easily distinguished from the Cornish chough (also a native of Ladakh) by the bill being shorter, and yellow instead of red. The young of the former have the bill and legs not so yellow and red as the adult specimens; my specimen measured 16 inches in the flesh. The scenery after leaving Kirboo was exceedingly dreary, and the heat in the narrow gorges and valleys very oppressive. Not a tree was visible for a long march of upwards of twelve miles, and until we arrived at the

Lamastry of Lameru, which is situated on the top of a ridge : the houses are built close together on points of the rocks. The immediate scenery around was really picturesque and fine, chiefly from the cultivated valley and rows of willows by the banks of its stream. The long dykes (*mani*), so plentiful in this country, were as usual covered with slate slabs, bearing the eternal words "Om mani Padmi om,"\* cut out upon each. One of the priests or *gelums* came out to meet us, bringing dried apricots, walnuts, and a mug of chung ; his jolly red nose, short-cut hair, and general *en bon point*, might have fitted well for "a friar of orders gray." He wore the usual red loose robe, adorned with amulets and strings of beads ; cloth boots of divers colours, and a praying-box in his hand, which he kept revolving like a child's rattle, now stopping to listen to our interpreter's request regarding provisions, then (as if to make up for lost time), setting to work to grind his prayers with redoubled energy. The head-dress of the natives consists of a long cap of black cloth, which falls negligently and not ungracefully on one side. Pig-tails are worn by both sexes ; that of the women consists of divers plaits, ornamented with blue and green pebbles, resembling turquoise—none, however, appeared of any value. The chung, or ale, is evidently much used, and the only intoxicating liquor known to the Ladakhees. The bloated looks, watery eyes, and red noses of many of the better classes sufficiently testify to their partiality for this "good cheer," which at best is not equal to sour cider. The mode of making it is by boiling barley, adding dough, and then allowing the whole to stand until fermentation has taken place. As usual with passers-by, we paid a visit to the lamastry during the after-

\* "Hail to him of the lotus and jewel."—See Hooker's *Himalayan Journal*.

noon, escorted by our jolly-nosed friend. After passing through several dark galleries and apartments, containing divers deities, figures on the walls, inscriptions, and so forth, we were ushered into a long low-roofed room, surrounded by piles of records, and many most uncouth images. On each side of a long table were seated eight old men, who, immediately on our appearance, commenced a most diabolical uproar—shouting and beating drums, and blowing blasts on huge brass trumpets. More and more uproarious they became ; in fact—

“ They screwed their pipes, and gar’d them skirl,  
Till roof and rafters a’ did dirl.”

The first notice of the shapoo, or wild sheep of Ladakh I can discover is in Moorcroft’s *Travels*, where he mentions seeing one killed near Lameru. We had not time to procure specimens, but on a subsequent occasion I was enabled to examine several entire skins and heads which had been procured in the surrounding mountains. These I compared with the houriar (*Ovis vignei*) in my own collection, from the salt range of the Punjaub, the details of which will be found elsewhere,\* and also in my paper in the *Proceedings of the Zoological Society of London* for 1858. The shapoo is said to be common on the Ladakh mountains, and extends northwards to Dardu on the Indus, and the countries to the west and south.

The road, after leaving Lameru, passes through a wild-looking gorge by the side of a mountain-torrent called Winlin, which, after a short course through the range, empties itself into the western branch of the Indus, or Sinh-kha-bab, at which point the road turns up the left bank to a log-bridge and custom-house, where, crossing to the opposite side, we

\* See pages 138, 143, 144.

were soon at the little village of Kelatse, with its fields of barley, apricot and mulberry trees forming a little oasis in the otherwise barren waste. The Indus here is a powerful river, full eighty yards in breadth. The surrounding mountains are mostly composed of granite, slate-rock, and a coarse conglomerate. A few miles farther on is the village of Nemla, composed of a few stone huts ; here we had to wait several hours before the arrival of our baggage, in consequence of having made a forced march of fifteen miles. On the following morning, July 16th, the remainder appeared on the shoulders of women, who, on account of the absence of their lords and masters in the sulphur-mines, had joyfully undertaken to carry the *kiltas*, and for the next three days all our baggage (amounting to twenty-four coolie loads) was carried entirely by these hardy, good-natured dames, whose contented (I wish I could say prepossessing) faces bore always a good-natured grin, no matter how heavy the load, or steep the hill up which they had to toil with it. Some of the women wore skull-caps and pigtails like the men ; among these latter we saw a few approaching to good-looking, but, like angels' visits, they were few and far between.

The road from Himis continues along the bank of the river, over low hills and across ravines, until, debouching into a rather broad valley covered with round pebbles and flints, you enter a plain of alluvium, which, after passing the picturesque village of Likur, suddenly terminates in another some hundred feet below its level. Fields of peas and beans surround the villages. The raven and hoopoe were the only tenants of the arid waste. After leaving the pretty little village of Bazgo, the usual mani and graves were observed for miles along our route ; also a noble range of snow-capped mountains running parallel with the river. In August the

gardens at Nimo are stocked with apples and apricots. After leaving Nimo the footpath winds through a sandy ravine near the Indus, now much reduced in size and velocity as compared with its course below Kalatse. In the shallow parts natives were catching Himalayan trout, some of which were above half-a-pound in weight. The common tern (*S. hirundo*) was seen hovering over the river. On emerging from the valley of the Indus an extensive plain is seen stretching north and south, surrounded by great snowy mountains. At the northern extremity stands Leh, the capital. It is situated upon a rising ground, at an elevation of 11,000 feet above the level of the sea. Like the generality of the fortress-looking towns and villages in Ladakh, it has an imposing appearance from a distance. The old palace, fort, and ruined wall on the face of a ridge are striking enough, but, in common with every one of Goulab Singh's conquests, tyranny and neglect have sadly changed Ladakh since the time of its legitimate rulers. A broad street, with a few wretched shops and wares, are all worth noticing. One is struck with the vast numbers of women hanging about the streets, some carrying heavy loads, others apparently waiting for employment. The men, it is said, are chiefly employed in the sulphur and borax mines, so that the greater part of the cultivation and manual labour in and about Leh is performed entirely by women. At stated times caravans from Yarkund arrive with brick-tea, shawl-wool, China silks, ponies, etc., which are exchanged for grain, English calicoes, and the like ; so that Leh is but a market-place for Cashmere and Yarkund merchants. The Yarkund pony is a hardy little animal, and fetches a high price, being in request for the hill-stations in the north-western provinces of India. The variety called the Tangun piebald is common. They are shy and timid at first, and evince a strange dislike to



Europeans, but soon get accustomed to their new masters ; and for their strength, endurance, and sure-footedness are well adapted for alpine travelling. While crossing the Kara Korum mountains, whole caravans are sometimes overwhelmed by snow-storms ; and I was told by Billah Shah, the chief merchant of Leh, that in many places the route to Yarkund is only traceable by the bones of horses. Billah Shah was exceedingly civil to us, and was much more popular than the commandant of Goulab Singh's fort in this neighbourhood, a certain Bustee Kam, who had the repute of being very cruel and tyrannical. We paid at the rate of three shillings per pound for a cake of black or green brick-tea, which, although mostly composed of leaf-stalks, was rich-flavoured. The tent was pitched in a grove of poplars and willows called the "town garden," where we were soon surrounded by all the idlers of Leh, including a Yarkund fakir, dressed in a quilted blanket and sugar-loaf hat of the same material. This strange-looking individual amused us during dinner by dancing a sort of jig, to which he kept time with a not unmusical song and two rods covered with loose iron rings ; the latter he beat constantly against his padded shoulders, whilst the intervals between each performance were occupied in earnest devotions, the length of which depended on the alms he received.

The sameness of the scenery began to get tiresome, for the eye found no relief from one eternal repetition. This continued day by day, soon produces depression rather than exhilaration, more especially when there is no time to examine objects which, on closer acquaintance, would doubtless prove both interesting and instructive.

On the 20th of July we continued our journey in a southerly direction, across the great valley and to the left banks of the Indus, on which we kept for several miles,

passing through a rich and cultivated district, studded here and there with well-built villages—a few of these, as usual, occupied projecting cliffs on the ridges and off-shoots. In the far distance the lofty peaks of the Kara Korum mountains rose against the northern horizon. We noticed porphyritic rocks near the village of Opshee, at which point the footpath leaves the Indus and turns to the right up a narrow gorge and by the side of a mountain stream, on which the common sandpiper, Asiatic and common water ousels, were observed. The chestnut-bellied redstart was noticed for the first time near Ghia; it is easily distinguished from the white-capped species by the broad white band across the centre of the wing. The female and young have no white on the forehead, and are less brilliant in colouring. The tame yak now takes the place of its half-bred, called “zho.” The cold and climate of these upland regions do not seem to agree with the latter. The yak is therefore the chief beast of burden in Rupshoo, and furnishes the Tartars with nearly all their wants. The wild animal does not come so far south, but a few are met with during winter and early spring on the Nobra ranges; they migrate, however, to the loftier slopes of the Kara Korum before the end of April. The yak wanders about singly or in small herds, preferring secluded valleys to open hillsides, passing the day among the snow, where, like deer and bears, it may often be seen at mid-day stretched out at full length asleep. Captain Peyton’s collection contained an entire skeleton and a few magnificent heads, procured by himself. The horn of the largest measured 2 feet  $4\frac{1}{2}$  inches round the curve, 1 foot in its greatest circumference, and between the tips 1 foot 8 inches. I learn, however, that much larger measurements are recorded. The prevailing colour of the wild yak is black, with a grayish

tinge on the head. In its native state it is shy and timid, and the same to some degree when domesticated. It would appear, however, that the wounded animal is ferocious, as Peyton informed me that one wounded by him charged impetuously with its head down, and that he saved himself only by jumping aside, when the infuriated animal, pursuing its headlong course, fell down a precipice and was killed. The zho, pronounced "zo" by the natives, is the hybrid between the female of the common shorthorn of Ladakh and the male yak, and is the chief beast of burden in the southern districts. We were informed by the Ladakhees that the cross is fertile, but Moorcroft, who devoted much attention to these subjects, says the progeny soon degenerates.

The shawl-goat, and a dwarf variety (black, with short horns), also a race of black-faced sheep, and the dumba, or broad-tail, are reared in great numbers. Four horned varieties of this sheep are not uncommon. The "black-face," or hunniah, stands much higher than any I have seen elsewhere, and is a handsome animal. We brought a herd of shawl-goats and two of these sheep to the Punjaub. Although the former thrived very well, all the sheep rapidly lost flesh and pined away within a month after their arrival on the plains. Moreover, the yak seldom survives beyond a few months, and even rapidly degenerates in the valley of Cashmere. The heat and insects are evidently its greatest enemies in the tame as well as wild state; and we observed that none of these animals, not even the goats, seemed to care for the luxuriant vegetation of the lowlands, preferring whatever resembles their Tartaric furze and bent to the rich clover and grasses of Cashmere.

After leaving Ghia the pathway leads up a wild-looking valley to the Tang Lang Pass, at the foot of which we en-

camped for the night, surrounded by beds of snow. At sunrise the thermometer stood at  $31^{\circ}$  Fahr ; and a little stream close by was frozen over. The pass is crossed by a narrow gorge between two mountains, and the ascent is by no means difficult. Several blocks of a pure white marble strewed the bottom, and the hillside was covered with a rather deep bed of glacial clay. The summit of the pass is said to be 15,500 feet above the level of the sea. From the little flat on which our tent was pitched we looked down on the plains of Rupshoo stretching through the mountains ; in fact nothing else than flat-bottomed valley, with the mountains rising abruptly on either side. These dreary-looking plains are for the most part covered with scanty herbage and patches of furze. Here and there we could discern the black tents and the herds of the nomadic Tartars, and for the first time we began to experience the effects of the high altitude, and soon found that slight exertion caused an oppressive feeling in the chest, fatigue, and weariness. At night I was frequently awoken by a sudden sensation which passed off on taking a deep inspiration. By some these sensations have been attributed to the necessary exertion consequent on attaining such elevations, but in our instance this could not have been the case, as the ascent had been gradual, and exertion far less in the Rupshoo plains than we had undergone in gaining that altitude. Moreover, the fact that the feeling continued as long as we remained in these elevated regions, and disappeared on the very day we recrossed the Tang Lang and got to Ghia, which is upwards of fifteen hundred feet below the level of the pass, is a proof that the feelings were associated altogether with the rarefied atmosphere of high altitudes. I am far more inclined to believe with Humboldt that the weariness and sense of fatigue in the limbs, especially in the joints, is the result of the low

atmospheric pressure. I allow that the above condition is influenced in a very great measure by the state of health, and that a disordered stomach or such like will cause the sensations to become more intense.\* Indeed I feel persuaded that no one subject to organic or functional disorder of the heart ought to attempt to travel in elevated regions, in as much as violent action of that organ is of frequent occurrence in healthy persons, and in the stout and robust bleeding from the nose is by no means rare. The year after our visit an officer affected with a diseased condition of the heart crossed the Nagpogonding Pass, when he became suddenly ill, and died on the banks of the Chumouraree Lake, where his solitary grave remains as a guide to the traveller along the shores of that wild and desolate region. It is somewhat strange, however, that the natives do not complain of this feeling, and seem to go up these steep mountains without any unusual sensations of fatigue ; also that those who ascend to great heights in balloons do not appear to suffer. That, however, may arise from there being no demand for exertion, for, except sense of oppression in the chest during sleep, we did not experience any uneasy feelings when at rest.

The bearded vulture was seen hovering over the Tartar tents. At their entrances were stationed several Tibetan mastiffs (*Molossus tibetanus*). These fierce-looking animals commenced barking on our approach, and had several times to be driven back by their owners. One old dame succeeded in silencing a savage-looking monster by putting his huge uncouth-looking head under her petticoats. The natives are a good-natured and jovial race, but very filthy. In the tents there seemed

\* This I have repeatedly observed with reference to the sirocco wind in the Mediterranean : to the healthy it has little effect, but the weak and diseased are materially injured by its depressing influence.

no attempt at privacy, and, judging from the number of sleeping-mats observed in those we inspected, crowding appeared to be excessive, yet they seemed a hardy-looking people. As usual, however, the bleary eyes of the old, and inflamed condition of others, showed that ophthalmia prevailed. I saw no goitre anywhere in Ladakh, although it is prevalent among the natives of the ranges which border the Indian plains. The women were exceedingly ugly, and among all the squalid-looking children about their various encampments I could not discover one with even the slightest approach to good looks. The raven was stalking unconcernedly about the tents, and so tame as to approach and feed on the refuse of our dinners. I found the pied wagtail, and once saw an individual of the gray sort (*Motacilla boarula*). The red-fronted finch, also the mountain-finch (*Montifringilla adamsi*), kestrel, black-throated wheatear, alpine chough, and chuckore, were met with in about the same numbers on the plains of Rupshoo as on the less-elevated districts we had left. Several fresh and salt water lakēs were passed, around the borders of which were quantities of borax, crystallised and in powder; the latter is often borne aloft for several hundred feet by whirlwinds, which are very common around the lakes and sides of the plains. One lake, called Tooskee, was covered with Brahminy ducks (*Anas rutila*) and their broods, the latter being almost fully fledged.

July 24.—On the plain near the lake a herd of kiangs or wild asses (*A. hemionus*) were feeding. On our approach they scampered off to a safe distance, and, turning, gazed at us intently until we again advanced, when, wheeling off at a trot, they kept halting occasionally, and, turning towards us, advanced a few steps on each occasion as if for the purpose of reconnoitring. We attempted to get within range, but the want of cover, intense heat, and reflection from the plain, to-

gether with the oppression and sense of weariness consequent on the elevation, soon obliged us to give up the chase. Young fired at a herd of kiangs, which he calculated was about 200 yards off, but found afterwards that they had been nearly double that distance. There is unquestionably an ocular deception on these plains, for I have been told by hunters that at such high altitudes objects look much nearer than they are in reality. Possibly the clear and cloudless atmosphere may be the cause; however, it is a fact that sportsmen in these regions, at first, very seldom calculate distances correctly. One of our servants, a native of Koloo, who had visited Chinese Tartary, assured us that he saw there a kiang used as a beast of burden; however, all the natives we interrogated in Ladakh denied the possibility of any approach at domestication, and that the young always died in confinement. The chief food of this species appears to consist of the stunted fescue grasses common on the plains and mountains, together with a red-flowered vetch, possibly *Oxytropis chilophylla* of Hooker.\* The speed of the kiang is great. I did not see it gallop: its action seems to consist of a long step or trot, which is never varied. I was surprised to see the agility with which a herd bounded down a steep hillside.

The Tooskee Lake is about two miles long and half-a-mile in breadth; its waters are highly impregnated with soda. No fish were obtained in the lake nor in the fresh-water streams which run into it. I procured specimens of Temminck's sand-piper and the little sand-lark, both of which were common along the shore. Halkett's mountain-barometer made the lake 15,000 feet above the sea-level. This is probably a little under the mark. The hills around are said to abound with large game; but although I tried to ascend one

\* *Himalayan Journals*, vol. ii. 164.

of the highest peaks, I saw none, and became dead beat long before we got half-way up. My companions also experienced the same unconquerable oppression. Young saw a herd of nahoor or wild sheep, and several herds of kiang. The nahoor, if not identical, is very closely allied to the burrel of the Borendo Pass.\* It is called the naboo in Ladakh, and is the sna of Tibet ; and, judging from the quantities of its horns on the chaits and cairns of both countries, it would appear to be their most common wild ruminant. Mr. Blyth's distinctions between the two sorts of burrel have reference chiefly to the form of the horn. He says the burrel's is more rounded, the annual dents are better marked, with larger bulgings between them. The outline of the horn is more graceful, and the whole configuration of the animal more imposing. I must confess I have not observed these distinctions, although I have compared horns of the nahoor with its more eastern congener ; and I question the propriety of taking such equivocal points as a means of separation. My own experience has taught me to place little reliance on the shape of the horn, for both in this and the other wild sheep and goats of the Himalayas the horn, as I have had occasion to remark, is subject to considerable variation in each species, both as to shape and appearance.

The argali, or *Ovis ammon*, is not uncommon in this district, but is more plentiful on the northern ranges. A few remain about the Tooskee Lake and neighbouring hills during summer ; the majority, however, migrate to Nobra as the snow melts. I had an opportunity of examining a magnificent collection of skins and heads made in Nobra by

\* *Proc. Zool. Soc.* 1840, p. 68. *Ann. and Mag. Nat. Hist.* 1841, vol. vii. 249.



my friend Captain Peyton during the spring of 1854. He informed me that he found them in herds, chiefly on low hills, and almost invariably in the open places, where an old ram was always on the alert when the remainder were lying down. Its alarm consists of a loud whistle, which, as in the case of the other wild species, is the signal for instant departure. They run at great speed. Lieutenant Smith, 75th regiment, informed me that he attempted to run down a wounded *Ovis ammon* with Persian hounds, but with no success, as the dogs became breathless in a short time, he supposed from want of water, but in all probability from the high altitude, as the locality was at least 14,000 feet above the level of the sea. Besides, from the stony nature of the mountains, they soon become footsore. I have seen enormous horns of the *Ovis ammon* on the chaits, where, I believe, the finest are to be procured. These cairns are mostly made up of horns, of tame yak, wild sheep, and goats, which are piled up in the shape of a cone, with stones, pieces of quartz, pebbles, and sticks, to which rags are attached. They are considered to be the abodes of spirits, and when a Tartar arrives at one, he walks round it several times, repeating a prayer, of which the everlasting "Om mani Padmi om" forms the chief part. An adult male argali stands about  $12\frac{1}{2}$  hands high at the shoulders. The horns of the female seldom exceed 20 inches in length, and are flat, narrow, and curve backwards. The horns of a ram's skull, taken off a chait near Tooskee, measured  $39\frac{1}{2}$  inches around the curve; but specimens much larger have been procured.

The sous or Tibetan antelope\* (*Pantholops hodgsonii*) rarely comes so far south as Tooskee Lake; its favourite haunts are among the lofty ranges northwards, where, according to my in-

\* For a full description of this animal, see *Jour. As. Soc.* 1846.

formants, Peyton and Smith, it is met with in herds. In the former gentleman's collection from the northern part of Nobra, I observed one with a horn much distorted and stunted in growth, which would show that these slender members are apt to get damaged, and possibly one might drop off occasionally, which would give the animal the appearance of being one-horned, and account for the Messrs. Huc and Gabet's\* assertion with reference to a unicorn, even as Dr. Hooker justly remarks a profile view of the animal might to careless observers carry a like impression. The Tibetan antelope is swift-footed and graceful in its movements, and by no means shy in situations where it has not been often hunted. The height of an adult male is 3 feet 3 inches, and the average length of horn about 24 inches. One of Peyton's trophies measured 27 inches. It was remarked that in nearly all his skins, amounting to upwards of twenty, there was found clusters of the larva of an insect, -each of the size of a sparrow's egg, deeply embedded under the skin of the back and hips. Like the other wild ruminants of these regions the sous repairs to the snow during mid-day to escape the flies and insects, which seem to annoy it in a great degree. The two slit-like openings in the groin, which Peyton informed me formed pouches capable of containing the clenched fist, are certainly strange appendages, and like the infra-orbital openings their uses seem by no means apparent. We had scarcely pitched our tents near a spring in the immediate vicinity of the lake, when the excessive heat and oppressive state of the atmosphere suddenly changed, and a cold breeze came down the mountains, where a thunder-storm was seen raging with great violence. Gradually it moved along the northern shore of the lake towards us. In half-an-hour the thermometer came down from 82° to 34°, and snow

\* *Travels in Tartary.*

fell in quantity sufficient to cover the surrounding mountains several inches in thickness. These sudden changes of temperature are of frequent occurrence during the sultry heat of midsummer, and are doubtless owing to the different states of the atmosphere of the plains and valleys, compared with the mountain-tops, both as to temperature and electrical condition.

The Tibetan sand-grouse (*Syrrhaptes tibetanus*) repairs in large flocks to drink at the fresh-water springs; two were killed by a party of Englishmen at our encamping-ground on the day previous to our arrival. The plumage of both sexes is much alike, but the long tail of the male is distinctive. A fine eagle, with white head and neck, black body, and long wedge-shaped tail, was seen on a cliff near our tents. The tailless rat\* (*Lagomys hodgsonii*) is plentiful, but I did not see the other species (*Lagomys roylei*) so common on the Cashmere ranges. One or both may be the Pharaoh's mouse mentioned by Marco Polo. The lagomys is said to be eaten by certain tribes in Tartary. Some persons have supposed the marmot to be the animal referred to by the above traveller, but I have not been able to discover that it is ever used as food by the natives.

The alpine hare (*Lepus oiostolus*) was common among the fallen boulders, and along the stony bottoms and sides of the valleys leading towards Poogah Lake. This species very much resembles the alpine hare of Europe. It makes forms under rocks, and is said to burrow in banks, where we saw several holes partially filled up with soil, after the manner of rabbit-burrows. Like its congener just mentioned, this species changes colour with the seasons. It is said to be almost white in winter. In midsummer it is a light-brown, ex-

cepting on the hips, which are bluish, and the lower parts white.

The Tibet ravine-deer of Europeans (*Procapra picticauda*) is met with on craggy mountain-sides, and, like the goral and chamois, delights to sport among cliffs and precipices. The ruddy or Brahminy goose, and its broods, are plentiful on this lake and around its stony sides. The flesh of this bird, although generally considered unpalatable in India, is by no means so when stewed with mountain mutton and alpine hare in the regular "hotch-potch" style. I recommend every Himalayan traveller to adopt this plan with game in general, and provide himself with a good-sized stew-pot; for it is wonderful how few incompatibles enter into the hunter's fare when seasoned with a good appetite. You may mix fish, partridges, hares, ducks, and venison, and, if well served up, nothing can be more savoury. Near the little green plot at Poogah on which travellers generally encamp is one of the sulphur and borax mines. Here we found several men and boys employed melting the minerals, the former in shallow basins. The hollow in the rock was only a few feet from the surface, and lined with beautiful octohedral crystals of sulphur, more or less mixed with white powder or crystallised borax.

After a tedious march of upwards of twelve miles over a low range of hills, and across a dreary stony plain, we passed a small lake, and soon afterwards a large sheet of water was seen extending southwards for upwards of ten miles—its greatest breadth might be about two. Gerard, the first English traveller who visited the lake, calls it Chuinoninil, and makes its elevation 15,000 feet above the level of the sea. My own impressions are that this is under the mark, although Halkett's mountain barometer gave nearly the same altitude.

It is called Tsumureri by Moorcroft, which the Tartars at the Poogah mines pronounce Tsomorerree. Of late years English travellers have been accustomed to name it Chimonraree, which is likely to supersede the others. There is much difficulty in being able to find out the names of places in these uninhabited districts, for one may journey for days and not meet a single native; and when any are encountered they are generally non-residents, or travellers on their way to or from distant countries.

A noble amphitheatre of mountains surrounds the lake on one side, whilst at its northern extremity is the Nagpogoding Pass, which, according to the above authority, is 17,000 feet above the level of the sea. Halkett made it 800 feet higher, but his calculations were not studiously exact. The shores of the lake are stony, and the high-water marks seem to indicate considerable elevations at certain seasons—perhaps during the spring and winter months, when evaporation is least. Several good-sized streams run into it, but there is no outlet. No doubt the waste and supply are balanced by evaporation. The idea of a subterranean communication, as surmised by some authorities, has no support from any appearances observable on the lake or neighbouring country.

Excepting one rude stone building, occasionally occupied by the gopa of the district, and that scarcely worthy of the name of a human habitation, we had not seen a house of any sort since leaving Ghia. The solitary grandeur of the scene was at first impressive, but soon became wearisome in the extreme, for the eye got tired of the unbroken sheet of water, then scarcely ruffled by a breath of wind, and of the vast barrier-chains which, like those we had been accustomed to see for weeks, presented the same monotonous similarity; whilst the stony desert plain around the lake showed not one

object more than another to attract the eye, and no sound to break the stillness around.

The highest peak (Prang-la) is said to rise 4000 feet above the level of the lake. No fish were seen in its clear waters, although a small species, perhaps the fry of the Himalayan trout, were common in the little mountain-streams where they empty themselves into the lake. The water of the lake had a soft brackish taste. As usual, the alpine pigeon (*C. rupestris*), black-throated wheatear, raven, Ladakh mountain-finch, were common on the hills and plains around. The lesser tern was seen occasionally, and I shot, for the first time, a brown-headed gull (*Larus brunnicephalus*), which was now and then seen hunting along the margin of the lake. This handsome bird is not unlike the black-headed gull, from which, however, it is distinguished by the colour of the iris, which is white. The head and neck are grayish-brown, turning to black on the lower part. The first six primaries have the proximal half white and the distal half black, with white spots on the tips of the two first quills. We observed the rufous-breasted dotterel (*C. leschenaultii*) and young, a brood of which were seen running along the pebbly side of the lake. An adult male measured in the flesh 7 inches. Forehead is black, with a white spot in front of the eye. A black band passes from the bill through the eye; throat and neck are white; breast and sides of the neck light rufous. The black-headed mountain-finch (*Montifringilla hæmatopygia*) is often seen around the lake, usually feeding with the short-billed variety of the mountain-linnet, which is common in Ladakh. The young of the latter have the edges of the quills more marked with white, and the pink on the rump is paler than in the bird of Northern Europe; otherwise there is no apparent difference. The smaller bill, which has given the Asiatic bird a character

is called *L. brevirostris* by Gould, somewhat different from the other, was by no means very apparent in my Ladakh specimens. As far as I can make out from comparison of skins, there does not seem sufficient grounds for separating the above and *L. montana*. Sir William Jardine, who has likewise carefully compared Ladakh specimens with the above, is of the same opinion.

The black-headed mountain-finch is usually seen singly ; its flight is powerful ; the seeds of an artemisia constitute its favourite food. The male in the flesh measures 7 inches. The eye is small ; back and wing-covers grayish-black ; rump thick and tinged with pink ; tail black, margined with white ; lower parts are dirty-white. The plumage of the back and belly is soft and downy, which is the case with many of the indigenous birds of these high altitudes, evidently to serve as a protection against the cold of winter. In fact, the extra down takes the place of the woolly pileage of the mammals of these regions. The rufous-breasted accentor (*Accentor strophiatius*) frequents the furze bushes, where I found its nest, with four eggs of a white colour, beautifully speckled with light-brown like those of the yellow bunting (*E. citrinella*). Its call somewhat resembles the siskin's. The upper parts are brown, with longitudinal striæ of a darker colour ; throat and neck mouse-brown ; breast rufous ; belly and lower parts dirty-white. The brown and common water-ousels were again observed ; also a solitary Philippine dotterel. We saw a flock of geese settle on the lake, but could not discern the exact species. However, by the aid of our telescopes, we could recognise mallard and teal, but they were likewise a great distance from the shore. I shot a small sand-martin, which at first sight appeared to be identical with the common bank-swallow (*H. riparia*), but turned out, on closer inspection, to be an

allied species (*Cotyle subsoccata*) also met with in winter in the Punjaub.

The Tibet partridge (*P. hodgsonii*) was first discovered by Mr. Wilson of Mussooree\* in 1841, and subsequently described by Mr. Hodgson.† It was still later (1854) met with by Lieutenant Smith, 75th regiment, near the Pangong Lake in Little Tibet.‡ Since the above date I observe several more specimens have reached Europe. It seems this partridge is common along the western slopes of the Tibetan Himalaya, and affects barren mountain-sides. When the Rupshoo mountains are properly explored, it may be found there likewise. The skin of Mr. Smith's specimen, from which Mr. Gould's delineation was taken, measured  $10\frac{1}{2}$  inches in length. A white band crosses the forehead, and, passing over the eyebrows, meets the opposite at the occiput. Throat white; black patch at the corners of the lower mandible; breast and belly barred irregularly with black and rufous, the former in greatest abundance on the breast, the latter on the neck and sides of the belly and breast; vent and lower party of the belly dirty-white; the feathers as usual are soft and downy; crown rufous; occiput mottled with black and rufous, which is continued over the back and wing-covers, resembling closely the same parts in the Indian gray francolin, whilst the quills of the birds assimilate in appearance with the same parts in the black partridge. Many sportsmen who saw Mr. Smith's specimen pronounced it a hybrid between the two last-named species, and certainly at first sight the similarity is striking.

The ibex is found on certain ranges in Ladakh, especially

\* *Calcutta Sporting Review* for December 1848, p. 163.

† *J. A. S. Bengal*, vol. xxv., p. 165.

‡ Gould's *Birds of Asia*.



on the chains northward of Leh. I have examined various specimens from the district lying between the latter and Iscardoh, on the Indus, none of the horns of which equalled in size those of the same animal from the Cashmere ranges. A like remark having been frequently made to me by both European and native sportsmen, I made a note of this difference at the time, and when subsequently inspecting the collection in the British Museum, and a fine specimen of the *Capra siberica* from the Altai mountains in the Derby Museum, Liverpool, was struck with the similarity of the latter animal and the Ladakh variety. At the same time, as they differed in no other particular, I cannot see any just cause to consider the latter otherwise than a race of *Capra himalayana*, which comes very close to the European ibex (*C. ibex*). Indeed, specimens of the two are often exactly similar in every respect.

## CHAPTER XIII.

Foxes of the Tibetan Plateau—Leopards—Discomforts of the Region—Return—White Marmot—Old Acquaintances—Degradation going on in the Ladakh Gorges—Scenery and Change in Fauna and Flora—Suru Valley and its enormous Glacier—Glacier action—Scenery in the Northern Ranges of Cashmere—Wurdwun Valley again—Snow-storm—Snow-partridge—Varied and beautiful Scenery—Start from Pilgam after Deer—Unsuccessful Expedition—Birds—Flora—Rain—Bears, and their Habits—Wretchedness of the Natives—The Sporting-bag—Return to Serinuggur—Departure for Rawul Pindee.

THE mountain-fox (*V. montanus*) was not seen beyond the wooded regions of Cashmere, and is evidently replaced by the silver fox (*V. flavesceus*), which is not, however, partial to the barren regions of Ladakh, but, as has been noticed elsewhere, is also to be met with on the tops of the southern Pinjal. The ounce (*L. uncia*) is perhaps the most common of the large Felidæ. I have seen the skin of a black variety, said to have been procured in Ladakh; and the natives of Tibet and Chinese Tartary mention a leopard without spots. The tiger does not apparently frequent these regions, and is said to be very seldom seen farther northward than the first ranges of mountains which border the plains of India. I believe, however, that individuals wander into the valley of Cashmere. I recollect at Changos, near Islamabad, one evening during my second visit to the valley, we were startled by the barkings of the mountain-foxes, which, my shickaree said, were tormenting a leopard in a bare scrubby jungle near our tent. I had

not time to mark the characters sufficiently, but on going to the spot, I observed a very large animal skulking through the cover. It had no spots on its sides, and from its great size I felt certain it was a tiger. The natives, however, positively deny that the tiger is ever seen in the valley; but, judging from their accustomed timidity, I can fancy it is seldom they wait to note the appearance of such visitors.

Our little party broke up on the 29th of July, Halkett proceeding to Simla, by Piti and Konawar, whilst Young and myself made up our minds to hurry back to Cashmere and employ the few remaining weeks of our leave of absence in hunting the Cashmere stag. It is painful at all times to part with a good companion, especially one who has shared your discomforts as well as pleasures, and deeply so when you feel that there is no hope of that good fellowship being renewed under the same pleasant circumstances.

On the 30th of July we bade farewell to our kind friend. Shortly afterwards it commenced to rain, accompanied by a cold biting north wind, which at last ended in a heavy snow-storm, and we were driven to seek the shelter of the rocks, until approaching night compelled us to encamp on the cheerless hill-top without the means of preparing our dinners. On the following morning we were off again by another and nearer route across the mountains to the Tooskee Lake, where we just arrived to encounter another heavy snow-storm, as sudden in its onset as on the previous occasion. The thermometer sank 30 degrees in half-an-hour, and hail and snow lay thick around us. All rushed towards the little stone hovel near the spring, to find it occupied by a party of Tartars and their asses and sheep, which were laden with bags of salt and flour. It is a serious matter in these regions to get caught in a storm, as dried yak's dung and furze are the only fuel

procurable. On the above occasion it came hard on us to be obliged to dine on milk and cakes, especially as several ruddy geese and hares were in our larder. Shortly after leaving Tooskee we overtook the party of officers we had met on our way to the Chimouraree Lake. They seemed to be taking it easy, and enjoying their English luxuries in the shape of pig's faces, port, and beer—delicacies to which we had long been strangers. It was, however, somewhat mortifying to us, who had purposely come in the lightest marching order, to find, in spite of all our plans to secure easy access to the game, that one of these gentlemen on the previous day had scarcely walked off the beaten path when he killed two fine specimens of *Ovis ammon*, whilst with all our trouble and preparation it had not been our fortune to see even one; but "the race is not always to the swift, nor the battle to the strong;" at the same time there can be no doubt that to cultivate an intimate acquaintance with the denizens of these rugged mountains, one must be content with a small commissariat. I have done many a hard day's work on porridge and milk, but it is not wholesome to use every sort of hill-flour for that purpose, especially the coarse grain of the Wurdwun and other valleys northward of Cashmere. When crossing the Tang-Lang Pass we came on a colony of white marmots (*Arctomys tibetanus*). This sort is distinguished at once from the red species by its lighter colour, being a yellowish white, and also its call, which more resembles a whistle than a scream. One side of a spur was riddled by their burrows. The white seems to take the place of the red marmot on the more barren and high ranges above 10,000 and 12,000 feet.

We arrived again at Ghia on the 1st of August during a heavy snow-storm, which delayed the baggage for several hours, and obliged us to beg for shelter from the natives, who

kindly put us into one of their temples, where we spent that and the following day surrounded by images and idols. It was a frequent subject of remark, how much our friends at home would wonder to see us all seated on the floor surrounded by these grim-looking figures, and not much less grotesque-looking Tartars crowding around the door to watch us at dinner. I have a vivid and pleasant recollection of that day, and of the wild and unbounded delight of two Irishmen and two Scotchmen meeting by chance in such an out-of-the-way place, all brimful of news and adventures.

The feeling of oppression and lassitude, which had affected all of us during our travels in Rupshoo, left us as soon as we recrossed the pass and got to Ghia. It seemed as if a heavy load had been removed from off our bodies. To me the sensation had been unusually troublesome for the last few days, in consequence of suffering from over-fatigue in attempting to ascend the mountains in quest of birds.

It is dangerous to penetrate the defiles of Ladakh immediately before or during a fall of rain, as masses of rock get loosened, and roll down the mountain-sides into the valleys. During our march to Opshee we were kept in constant dread of falling rocks, the noises of which sounded like thunder through the narrow gorges. It was, therefore, a great relief to get clear of the pass and once more debouch on the open. Being desirous of witnessing one of the fairs which annually take place at Leh, we delayed a day or two, waiting for the caravan expected from Yarkund, but to no purpose, and as the fair could not commence until the Tartar merchants arrived, we took our departure for Cashmere. Continuing by the former route as far as Kargil, we then changed the direction and proceeded by another road which leads across the Suru glacier into the valley of Wurdwun. Accordingly, on the

13th of August, having started from Kargil, we passed up the banks of the Kartse, through a fine broad valley, which lies to the south of the village. The country was somewhat densely populated, and well watered by means of canals, the banks of which were covered with rows of fine spreading willows. The surrounding mountains are very steep, and for the most part scarped, especially towards their summits, whilst their hollows and fissures lower down were green with grass or filled with snow. Large detached masses of rock, with the same vitreous exterior as observed near Dras, strewn the bottom of the valley and bed of the river, and reflected the heat strongly in our faces. We passed the noble peak of Kartse, rising from the bed of the river to an altitude of 14,000 feet above the level of the sea in one shattered and scarped spire, both its summit and hollows covered with perpetual snow. At the base of the mountain is the pretty village of Lang Kartse, and a mile or so further on the fort and little hamlets of Sanko. Several torrents had to be crossed, one of which delayed us some hours in consequence of its bridge having been carried away by the melting of the snow on the high mountains. The more we advanced southward, it became apparent that we were fast leaving the barren region of Ladakh, and were entering again on the rich and fertile valleys of the south. Both flora and fauna proved this. Yesterday, at Shergol, we had seen the magpie, chestnut-bellied redstart, alpine chough, and Tartar rock-pigeon ; to-day their places were taken by the roller, white-capped redstart, Cornish chough, and blue rock-pigeon ; moreover, the Tartar visage had now give place to the Caucasian.

It was sunset before we arrived at the fort of Sanko, where its fat little commandant was ready to receive us, and had

spread a mat on the green, on which we all sat down and chatted together until after dusk. Whilst our host was intently narrating to us a story eulogistic of his lord and master Goulab Singh, some one by mistake let off the water in a garden close by, so that before we knew what had taken place the whole green was inundated. My companion and myself were soon on our feet, but the commandant, being very portly, required assistance, which, however, arrived too late to save his nether garments from a thorough soaking. To us the scene was ludicrous in the extreme, especially on seeing the fat little man waddling like a duck through the wet in his dripping tights, with his heavy sword dangling by his side, and the large shield (part of his state costume) slung on his shoulders like a tortoise-shell. The dignity of our friend had evidently received a serious blow, for he fumed and swore most vehemently at some imaginary enemy, for none could persuade him but that the whole affair had not been done on purpose.

The Suru valley narrows in some parts ; at others spreads out into prairies clad with dense and luxuriant vegetation, like that of the Sonamurg. It was delightful to wander through the long grass and pluck wild flowers, after the dismal sterility of the country we had just left. Several mountain-torrents had to be crossed on the way, and a few by means of rope-bridges made from the twisted branches of willows. A few miserable-looking stone hovels were seen in clusters on the ridges, and in situations where they were not likely to receive injury from snow-drifts and avalanches.

The green sandpiper, roseate finch, hoopoe, and chough were observed, also a whinchat of a species I had seen on one occasion near the Poogah Lake. Several colonies of red marmots occupied the hill-sides and valleys, whilst on the Kartse

I observed the red-billed curlew (*Ibidorhynchus struthersii*). A few bearded vultures were hunting along the slopes in quest of small animals, whilst the Indian vulture was soaring overhead, and numbers of the common swift wheeled around the precipices. It was late in the day when our baggage arrived at the foot of the glacier, and fearing we might not be able to cross before night, encamped close by on a green sward, down which ran a rapid torrent from the glacier, forming one of the chief tributaries of the Kartse. Like many other streams of glacier origin, we noticed a great difference in its size in the morning compared with mid-day and afternoon, which was doubtless owing to thaws and heat; consequently, several streamlets which had flowed in the afternoon were frozen at night and up to mid-day.

The view from the tent was unquestionably very grand. Above us rose a towering peak, with its summit hidden in clouds; whilst half-way down a tremendous icebed filled the valley, and stretched in one huge tortuous mass between two perpendicular ridges. The surrounding mountains presented a succession of rocky and scarped sides, whilst a series of noble-looking ranges filled up the background, and stretched away as far as the eye could penetrate. It had snowed off and on during the day, and now cold drizzling showers were continually recurring, so that the servants and coolies, for want of better shelter, were driven to seek the cover of any projecting rock. Their little fires sent clouds of smoke upwards in dense masses, whilst our Rupshoo goats and sheep, and my jaded pony, grazed silently around our little canvas home, all of which consorted well with the grandeur and wildness of the surrounding scenery. On the following morning the party started in mist and rain, and after an hour's scramble gained the summit of the pass, which is said to be 13,000 feet above



the level of the sea. The descent was very difficult, in consequence of great transverse fissures, over which the coolies and animals had to leap. These great gaping ice-rents continually obstructed our journey, and frightened my pony by the hollow noises occasioned by the torrents of melted ice which flowed into them from the surface of the glacier. Our course was therefore tortuous, and had to be directed as it best could by seeking the narrowest portions of the rents. In this way four hours were spent toiling over the broken and irregular surface, for the most part covered with masses of rock, gravel, and debris from the surrounding slopes. At times we had to slip down abrupt declivities, at others to scramble through great hollows. The grandeur of the scene, in spite of the hazy state of the atmosphere, was most impressive, and I more than once turned and gazed upwards at the vast contorted mass of ice and rock, wondering how long the huge boulders lying on the top of the glacier would take to move to the bottom; and wondrous as glacier motion seems, there is certainly something in its general appearance which suggests the idea of a frozen river. The sweeping slope, dirt bands, and lateral moraines, have, even to the unscientific observer, some significance of motion. I believe we would have appreciated the grandeur of the scene a great deal more had we then been intimately acquainted with the discoveries of Agassiz, Forbes, Tyndall, and others, or what is so truthfully and so sweetly portrayed in the following lines :—

“ A sunny glacier on the creviced slope  
Its icy talons fixed, and down the hill,  
With annual progress, like a tortoise crawled ;  
Doubtless is crawling now, while summer noon  
And its relaxing ether smooth the path—  
A path more slowly travelled in the frosts  
Of winter, yet incessantly pursued

By night and day the varying seasons round.  
The feet of destiny are not more slow  
Than that mute creature, haply not so sure."\*

The Suru glacier terminates abruptly in a vaulted cavern, from which the Scinde or Wurdwun river takes its rise. As we descended, the surrounding mountains began little by little to show approaches to verdure, commencing with birch, which was succeeded by grassy slopes covered with pasturage, dense and luxuriant as any we had yet seen. Abundance of wild onions and rhubarb covered these slopes, and although it was the 16th of August, the cuckoo's chaunt sounded sweet from the birken woods around, and the wild scream of the red marmot was heard shrill and loud above the roaring of the cataract. Continuing our course down the mountains gradually sloping towards the valley of Wurdwun, either by rugged pathways or wading knee-deep through long grass, we at length gained the banks of the Scinde river, and after toiling over its rugged bottom, and picking our way through the forest we found ourselves once more at Sochness. The snow had long since disappeared, and the valley of Wurdwun was now clad in verdure, presenting a strange contrast to what we had witnessed in May; however, the misery and wretchedness of the inhabitants continued as before, such utter apathy and grovelling indigence as the most degraded of Oriental races present. The men, dressed in their long loose gowns, presented a most effeminate appearance. One cannot help feeling that, even making every allowance for the tyranny and oppression of their rulers, the Cashmerians are naturally a phlegmatic and spiritless people. Everywhere in Cashmere you see the inhabitants indolent to a degree, filthy in their

\* *Sir Lanceolot: a Legend of the Middle Ages*, by F. W. Faber, D.D., Priest of the Oratory of St. Philip-Neri.

habits, mean, cowardly, shabby, irresolute, and indifferent to all ideas of reform or progress; so much so, that I verily believe it would now take a century of the most liberal government to bring them on a par with their neighbours, for among all the advantages possessed by a land overflowing with milk and honey, the Cashmerians are about the least enterprising of Oriental races. With the Sikhs they have nothing in common, and as to personal bravery and warlike character they never had any pretensions, but, on the contrary, their deficiencies in these respects have long since passed into a proverb. It is vain, however, to hope that there can be any progress under the present ruler, who, like his father, is bent on self-aggrandisement, and that of the worst description; so much so, that were it not for the natural beauties of Cashmere the land would have long since been turned into a wilderness. Whether to ascribe the above defects in the Cashmerian character to long and continued oppression, to themselves, or, as some have supposed, to their moist, enervating climate, one thing is certain, that as long as the present system of government continues, so long will this unfortunate people retrograde, for advance they cannot. The grain in Wurdwun valley was still green, although we had seen the barley reaped and thrashed at Kargil only four days before. The rigor of the seasons is always most severely felt in secluded valleys, as the snow lies long, and, coupled with the constant clouds and rain of the monsoon months, makes the climate, especially that of Wurdwun, most disagreeable, at least until August.

After several tedious delays, we left Sochness in a pelting rain, but only too glad to get away from the filthy log-house, where we had spent two days among the poultry and such a collection of vermin as we had never before witnessed. Being anxious to reach the Duchinpara by the nearest route,

we struck up a steep hill in a northerly direction, behind Sochness, and passed over several beds of snow. When near the top of the ridge rain fell in such torrents, and the clouds became so dense, that we were obliged to encamp on the nearest bare spot, where, with our servants and eight coolies, all huddled together on the floor of the little tent, we braved the pitiless storm for the remainder of that and the whole of the succeeding day. The coolies were most averse to proceed any farther; indeed it was with great difficulty they had been procured, and had not a sharp look-out been kept by our servants we would have been left on the hill-top without the means of transport; as it was, two or three deserted, and had to be replaced by sending all the way to Sochness for others. They feared the weather, and dreaded being storm-bound on the summit of the pass; so that, on the following day, when the last portion of the ascent was being made, several flung down their loads and would not proceed. Moreover, it was only with the greatest persuasion we could get the remainder to continue the journey. Matters looked desperate, but we had no alternative but to push on to the nearest village, and despatch a servant to Sochness once more. The summit of the ridge is 13,000 feet above the level of the sea, and forms one of the highest practicable passes of the Northern Pinjal. From the top we looked down the opposite side on a field of snow, ending in verdant mountain-sides, which in their turn gave place to the woods and forests of the Duchinpara and its offshoots. In a gorge near the top is seen the pretty little lake Sonsermag, from whence gushes a small stream which falls into the Lidur a short way farther down. In bare stony places in and around the snow I saw several wrens (*Troglodytes himalayanus*), a species closely allied to the familiar European bird, from which it differs in scarcely any

appreciable degree. It is common at high altitudes all over the Cashmere ranges. A flock of snow-pheasants were seen, together with the quoir monal or snow-partridge (*Lerva nivicola*), which at a distance resembles the other, but it is very much smaller. This handsome bird is not uncommon in certain localities and at high altitudes on Cashmere, Ladakh, and northwards. Mr. Wilson of Mussonree, whose long and intimate acquaintance with the habits and haunts of the larger animals and game birds of the Western Himalayas, entitle him to be considered a good authority, says: "The snow-partridge breeds near the limits of vegetation, and lays from six to seven eggs."\* Its wild plaintive whistle very much resembles that of the snow-pheasant, to which bird it assimilates likewise in habits. Both it and the other *Tetraogalli* of these regions are hardy, and I imagine would stand the climate of Northern Europe. We saw flocks of a starling-like bird flitting from one bare patch to another on the confines of the snow; they ran with much celerity, but no specimen could be procured. What appeared to be the male had long pointed wings, was a fine glossy black above, less so on the lower parts; the others, possibly females or young of the year, were less brilliant, and of a sombre blackish-brown, like that of the Asiatic water-ousel. There are light and dark coloured varieties of the latter to be seen both in Ladakh and on the lesser ranges near the plains of India. As usual at such elevations, flocks of the brown mountain-finch (*M. nemoricola*) were plentiful.

The scenery of this day's march, taking it all in all, from the snow-clad mountain-top to the grassy hill-sides and

\* *Calcutta Sporting Review* for December 1848 contains an excellent description of the habits of many Himalayan game-birds by Mr. Wilson ("Mountaineer")

magnificent forests of the Duchinpara, was among the most beautiful and varied we had hitherto trodden. The wild-looking grassy glades and groves of pine and birch, undulating for miles, and sloping downwards into densely-wooded valleys, are among the most delightful and captivating of Cashmerian mountain scenery. We passed near the caves of Umer Nath, and along the pathway by which many a footsore pilgrim was hastening towards the sacred shrine in the gypsum rock. At Pilgam we found our old shickarees, Barshah and Ellishah, who by previous arrangements had come to accompany us to the deer-forests. In the meantime, while our commissariat was being replenished, we employed a few days in hunting the neighbouring forests and hill-sides, and Young killed a black bear near the village. One day, when crossing a mountain-top, I came on an isabella bear and cub feeding intently on wild carrots and roots of strawberries, which both were tearing up with their fore-paws. Desirous of trying how near I could approach unobserved, as the wind was very favourable and the animals busily engaged searching for food, I crept on hands and knees within 10 feet before either took any notice of me, when the old dame gave a grunt, and scampered off as fast as her legs would carry her, followed by the bewildered cub, which, astonished at its mother's timidity, turned round several times and gazed at us in astonishment. I have observed that this bear's powers of vision are by no means good, and of little use to the animal beyond 12 or 15 yards. I believe they depend almost entirely on smell and hearing for their safety. I discharged the contents of my double-barrelled rifle into the old dame as she rushed down the steep, but neither bullet brought her down. Ellishah would, however, persist in asserting that we would find her, and led me a wild-goose chase through the forest

and long ferns, with no better result than the satisfaction of finding out by the bloody trail that I had not missed my mark. Both species of bears commence to shed their winter coats in June, which are not again attained until the middle of October.

Although the weather was very unsettled and rainy, we determined to push up the valley ; so, on the 26th of August, having left Pilgam, we proceeded northwards, over hills and down grassy slopes, through belts of forest or clumps of birch, where I saw several flocks of my orange-coloured bullfinch and many fresh trails of deer. The ground was likewise ploughed up in many places by bears, one of which was killed by Young, who procured a considerable quantity of grease. The external fat is always preferred to that of the internal parts. I noticed the fat from the region of the kidneys had a strong smell of urine, which our shickarees said no refining will remove.

Being desirous of securing good deer-shooting at any price, we left the direction of our movements entirely to the shickarees, who shifted our encamping-ground as they thought fit. But all was in vain ; although up before daylight, and hunting late at night, not a single head of deer was visible. Thinking they might be found at the little ponds or springs at dusk or early morn, we repaired to the situations, and lay in wait, in anxious expectation of meeting with a herd when they came to drink. Even on moonlight nights we would wander through the copses and by the sides of the forest, but to no purpose. Every morning disclosed fresh footprints, and even sometimes close to our encampment. Nor were we more successful in the forest ; for although we waded up to the middle in tall bracken, and sought the deepest solitudes, not a sound was heard or a stag visible. It is notable that,

like the profoundest regions of the sea, the interior of these great pine-forests contains little or no animal life. There is apparently a similar gradation in the distribution of the fauna of forest tracts as there is between the littoral and abyssal regions of the deep. An occasional nutcracker was seen, but birds were remarkably scarce in all the forest parts. We plucked abundance of raspberries in the clearings, and a stone-bramble, possibly identical with, if not very closely allied to, the *Rubus saxatilis* of northern Europe. Wild currants were also plentiful, but sour and unpalatable. One day we encountered a string of natives carrying loads of asafoetida to the markets of Serinuggur. This plant, as before stated, grows in abundance in certain defiles and valleys running southwards, and is most plentiful on the more sheltered ridges. It is a large umbelliferous plant, seldom under 6 feet in height, with yellow flowers and thick stem, apparently the same as that we had met with in the Sonamurg.

The Lidur river, a moderate-sized mountain torrent of a few yards in breadth, had to be crossed, and to our disappointment we were forced to retrace our steps some distance to enable us to get across, in consequence of the log bridge having been destroyed on the previous day by a party of natives who had fled from the tyranny and oppression of the ruler of Cashmere, and, with their cattle and household gods, had pushed on by this route with the intention of becoming subjects of Sher Ahamid Khan, a neighbouring rajah. On the opposite bank we were shown a heap of stones, from which the fugitives pelted the Maharajah's sepoy who had been sent to bring them back. It was told us, moreover, that with a few old muskets they managed to keep the military at bay whilst their main body was retreating across the Kulohoy glacier at the top of the valley. In 1849 this Sher



Ahamid Khan attempted to dispute the sovereignty of the valley with Goulab Singh, but gave up the project from a fear that the Cashmerians in his army would show the white feather when it came to blows. I was assured of the truth of the above statement by a native merchant. It is likely, however, that the rajah was afraid of British interference. Be that as it may, there can be no question that the making away of the Cashmere valley was one of the grandest political blunders of its day, and one which will be constantly felt as long as we hold the Punjaub. Independent of the vast addition to our Eastern revenues by opening out a magnificent field for English enterprise, Cashmere would have secured advantages in a military point of view of the greatest importance, by affording splendid and healthy sites for a reserve army, which, on the shortest notice, might have been made available for any emergency in the North-western Provinces ; but instead, its noble prairies, plains, and forests, scarcely surpassed by those of any other country, have been sold to rulers whose whole end and object have been to reap and never sow.

The continual wet state of the weather was apparently the chief obstacle to our success, and the higher up the mountains the more unpleasant it became ; but, determined to give every region a trial, we made for the top of the ravine to a wild sequestered spot at the foot of the glacier. Several brown bears were seen, and I killed a male, from which a large quantity of grease was obtained. There was an old bullet wound in his hip, and another through his flank. We had now reached the *Ultima Thule* of our wanderings in quest of deer. Never did hunters work harder, for we toiled across the steep mountain-sides, over melting snow-beds and slippery slopes, but with no good results ; for no sooner did

one mass of cloud clear off the hillside than another took its place. One morning I espied a fine stag on a cliff above us, and just as I was getting within range, a cloud came rolling down the mountain and enveloped us. It was useless advancing in hopes of the dense mass clearing away, for there was no discerning objects within a few yards. I crawled, however, up the steep ascent to within a short distance of the deer, whose feet I could hear clattering on the stony ridge close by. Thus ended our futile attempts at deer-hunting ; and as the weather had every appearance of continuing in the same state for a week longer, we struck camp on the 2d of September, and, leaving the inhospitable region, retraced our steps to Pilgam, where a very different state of matters existed. From thence we could discern the clouds still hovering over the tops of the Kullohoy mountains, while all around the village was in bright sunshine. By our former route we continued our journey down the Duchimpara to the village of Gannisbul, situate among orchards of fruit-trees, under one of which our shickarees had spread bears' skins, and prepared for us a feast of apples and pears in celebration of our visit to their native village. In the evening we repaired to a neighbouring jungle to wait for black bears, which at that season descend from the mountains in numbers to feed on wild apples, grapes, and walnuts. Although we saw several, none were killed.

This species has been known under cover of night to enter the orchards in the very centre of the villages, and we were surprised one morning at Kullohoy to find that on the previous night one had been digging up the turf within a few yards of our tent. Their aptitude for climbing enables them to mount to the tops of the tallest trees, where they may be often found at night standing on their hind-legs on a branch, and seizing the boughs laden with walnuts, which they crunch, rejecting the

shells. They descend tail fore-most, and if suddenly startled, will drop to the ground from a considerable height, or, as sailors say, "let go by the run."

Never did the splendid valley of the Duchinpara look to greater advantage. The rainy months had now passed, and everywhere nature seemed to wear its choicest garb. Every animal looked happy except man. It was painful to observe the misery and wretchedness of the poorer classes, with teeming plenty around. Painful scenes were constantly intruding themselves on us, either in the shape of a revenue officer beating a farmer for being short of the rent, or numbers of poor, miserable, half-starved men and women searching for mushrooms and wild plants by the road-sides. Even the fruit of the walnut and other trees in the jungles was not exempt from the avaricious grasp of the ruler. In vain we turned away from these scenes, but to no purpose; if we managed to evade one, something more startling took its place. Here, as elsewhere noticed, ophthalmia was rife, and particularly among the women and children, whose wan and pale faces but ill assorted with the profusion and healthy aspect of nature's productions around them. Now that the sporting portion of our excursion was at an end, my companion, who had noted carefully every item of our six month's work, produced the following game-list, which, considering that we were more intent on sight-seeing than the chase, is perhaps by no means contemptible:—To Young's rifle fell 29 bears, 2 deer, 2 ibex; to mine, 7 bears, 5 deer, and 1 musk-deer; Halkett bagged 8 bears, 1 deer, 2 musk-deer;—grand total, 57 head. During my subsequent excursion to Cashmere in 1854 I was more successful, having killed 17 bears, 2 ibex, 2 markhore, 1 tare, and 6 musk-deer. These were great days for the hunter. I fear, however, that from the annual migration of English

sportsmen to the valley, it is seldom now that even the most expert and persevering are so successful. We reached Serinuggur on the 6th of September to find the quarters in City Gardens filled with European visitors, chiefly officers returned from shooting excursions, none of whom had been more successful than ourselves; and among the various competitors for the honour of having made the best bag of the season, Young stood pre-eminent.

The grapes of Cashmere are not equal to those of Cabool, possibly from the little trouble taken in rearing them. Unless in the gardens about Serinuggur, it is no uncommon sight to see them growing in great profusion in the jungles. The peaches are excellent; so are the mulberries and walnuts; but the apples are spongy, and the pears have not the flavour of the European fruit, doubtless from want of due attention.

The prince, in the absence of his father, who was reported to be seriously ill at Jamoo, gave a state dinner, to which all the English residents were asked. The festivities, as usual, were preceded by a natch, after which we retired to the banqueting-room, where upwards of thirty English officers sat down to dinner. The prince, of course, was debarred on religious grounds from eating with us, but he stood by and saw the lions feed. After dinner a comedy verging on the improper was performed by a very dirty-looking company on a temporary stage in the reception-hall. The prince wore a finely-worked turban-like head-dress with heron's plumes, after the Sikh fashion, with a jacket of blue and white velvet, magnificently ornamented with precious stones. I never before saw him appear to such advantage, and could not help admiring his becoming costume until he rose from his state chair, when the close-fitting tights (rather baggy posteriorly) and the meagre proportions of his lower extremities appeared

so perfectly out of keeping with the assortment of the upper part of his person that I could scarcely contain my gravity.

One of our shickarees, who received the name of Jungul from our servants on account of his wild and savage aspect, announced his arrival, accompanied by a young brown bear which Young had caught in Wurdwun, and entrusted to the care and tuition of Mr. Jungulee during our excursion to Ladak. Accordingly Bruin was added to our herd of Rupshoo goats and sheep; and on the 11th of September we bade farewell to the land of Nourmahal, and proceeded by the former route to Murree, from thence to Rawul Pindee, where we arrived on the 22d of September 1852.

## CHAPTER XIV.

Scavenger Animals—Their Utility—Hyena and Jackal Grave-Diggers—Swine—Dogs—Sheep—Their disgusting Mode of Feeding—Measled Pork—Tape-Worm—Antiquity of the Dog—Climate of Rawul Pindee—Degradation of Alluvium—Storms—Heats of Midsummer—Effects on Europeans—Agency of Storms and Removal of Organic Remains—Their Relation to Fossil Remains—Moon-rise on the Himalayas—Death of Captain Colby by Tiger—Departure for Peshawur—Elephant—Traits of Character—Peshawur—Lawless Natives—Murders—Khyber-Pass—Scenery—Dangers of Travelling—Mammals and Birds—British Birds—Migrations—Conclusion.

THE part played by certain mammals and birds in the removal of refuse, more especially in hot climates, is far more important than generally supposed. As regards India and the East, the chief actors in this great sanitary movement, or what might justly be designated Nature's first-class scavengers, embrace, among beasts, the jackal, hyena, domestic swine, dog ; and among birds, vultures, kites, crows, minas, and the well-known adjutant (*Leptoptilos argala*, Gmel.) I have noted many facts in connection with the habits of these useful animals in South-eastern Europe, North Africa, as well as Asia, and been strongly impressed with the belief that, if the time should come when the most prominent actors in the scene become extinct, or greatly reduced in numbers, there will needs be some means of making good the loss ; for most assuredly, if Eastern cities were at present denuded of their carrion quadrupeds and birds, there is no system of conservancy on the

part of the human occupants at all equal to take their place. The nocturnal, bold and sneaking habits of the jackal and hyena are well known. The last is decidedly far less numerous and hunts generally singly, whilst the jackal does so in packs. The one appears, however, frequently to accompany the other for at night, among the discordant yelps of the jackal, may be heard the hoarser bark of the striped hyena. Over South-eastern Europe, Central and Southern Asia, both are more or less plentiful, affecting also the mountainous regions to pretty high altitudes. Whether it be the climate or not, I have observed both species attain a larger size on the Himalayas, and are invariably in better bodily condition than on the plains of India. The exceedingly lean and half-starved aspects of both these animals, as met with in many districts, would seem to indicate that they have often a hard struggle for existence. It is said that the pariah dog assists them to rifle graveyards at all events, it is no uncommon circumstance to see the results of their depredations. One frightful example came under my notice at Rawul Pindie, where a grave in the cemetery was opened and a body torn to pieces by a troop of jackals. On the occasion in question they had removed several heavy stones placed above the body in order to prevent their attacks, and I noticed that, besides using their fore-paws in removing the soil, they had evidently lifted many of the stones with their mouths. Withal, however, these sacrilegious deeds are more than compensated for by the vast amount of scavenger-work they accomplish. Although anything in the way of flesh, putrid or otherwise, is acceptable, I am not aware that the jackal betakes to the dung-eating habits of the dog, swine, and even sheep, of India. The two first play an important part in the removal of the excreta in and around many Oriental cities, where no such institution as either a public or private

latrine is known. Indeed the swine of many parts of India are maintained entirely in this way, and driven daily to the purlieus of the towns. The domestic animal strongly resembles the wild species in its outward form, but its lean appearance and excessively loathsome habits present an equally opposite contrast. Its flesh is very often "measled"—that is, contains the germs of the tape-worm, which are supposed to be the result of its foul feeding. This circumstance came forcibly before my notice at Rawul Pindee, where the diseased flesh of the animal was sold in quantities to the soldiers. The result was a marked prevalence among them of the parasite, which, on microscopic examination proved to be the species known as the hookless tape-worm (*Tania mediocancellata*). No doubt mutton is frequently contaminated in this manner, as, strange to say, the sheep, and even goats, of many parts of the East, take to the same abominable mode of feeding. It is strange to observe how the poor rejected pariah becomes sensible of kindness or any attention from man. Once persuaded that no harsh measures are intended, his erect ears droop, and he crouches at your feet. This predilection for man seems almost inherent in the dog, and when we trace back its history as far as the refuse-heaps of Denmark and the pile-folks of the Swiss lakes, or what is still more suggestive, the representations on the Egyptian temples and tombs, the great fact is irresistible, that man and the dog have shared each other's company for possibly a longer period than any other; and whether the love at first was gradual or not, it has now at least, as far as the brute is concerned, become instinctive. Moreover, when we think of the vast periods embraced by the Egyptian monuments of antiquity, and the time it must have taken to develop even one variety from the feral stock, and note the fox-hound or turnspit of 4000 to 5000 years ago, it



may well be conceded that the dog, of all four-footed beasts, has a claim to our kindness and protection. The Himalayan wild dog, when taken young, is easily tamed, and this rule would seem to hold good with the wild races of other countries; indeed, although not generally acknowledged, the wolf, jackal, and hyena, get much attached to man, if carefully reared and treated with kindness. The semi-domesticated dogs, in common with the wild species, have erect ears; and this would seem to become more 'pronounced' the nearer they assimilate to the latter. This circumstance I have noted in respect to domesticated sheep, goats, etc., when left more or less to shift for themselves, as is apparent on the Himalayas and Alps.

The proximity of the snow-clad ranges creates frequent and sudden alterations in temperature along the sub-Himalayan valleys and adjacent plains. The cool weather suddenly sets in at Rawul Pindee about the end of September, and continues up to the beginning of May, when the strong heats commence. The harvest is now over, and the quails that had congregated during the ripening of the grain disperse among the scrub and wastes. Now the soil gets baked and cracked, so that when rain falls the thick mass of surface alluvium becomes thoroughly saturated, and at length disintegrates and is carried to lower levels or into watercourses, to be swept by the sudden freshets to the main-drainage channels that empty themselves into the Indus. This accounts for the very uneven and broken-up aspect of the country around Rawul Pindee, more especially in the direction of the Himalayas. Although the heat of midsummer is often intense, and as high as 100° Fahr. in well-built houses, and 140° in the sun, it is not of long duration, being frequently broken by thunder-storms, which are connected with the atmospheric conditions taking place at the same time on the high ranges.

There is no regular rainy weather at Rawul Pindee, but only the south-west monsoon clouds, as they drop their moisture on the Pinjal, affect the heated atmosphere of the torrid plains below. Then furious storms, accompanied or not by electric discharges, sweep along the north-western frontier of the Punjaub. Sometimes these phenomena assume imposing aspects. The storms are usually preceded by prolonged droughts and successions of intensely hot weather, when an unusually close and oppressive day is characterised by a peculiar stillness of the atmosphere, during which the leaves are seen to droop, and all animated nature becomes exhausted, and the soil is parched ; when, about sunset, a huge dense gray cloud of dust, several miles in breadth, is seen advancing from the north and hugging the mountains on the one side and the plains below, creeping stealthily but steadily onwards, preceded by hot scorching blasts, which raise the thermometer several degrees. The sensations are stifling for a short time, then suddenly the blast feels cool, and at length, as the mass approaches, and the thunder and lightning draw nearer, the dust envelopes you, and for a few minutes all is darkness, when down comes the rain, which the thirsty soil drinks up almost instantaneously, and the glass falls some  $25^{\circ}$  to  $30^{\circ}$  in the course of a few minutes.

The cold of the winter months does not begin to affect the leaf until the end of November, when frosty nights, succeeded by delightfully cool days, invite exercise, and strive to recompense the European for the long summer spent in darkened rooms and under punkas, where he had dragged out a monotonous existence, panting from heat and pallid from want of exposure to the air outside. The generally bleached aspects of Europeans in India, and women in particular, are doubtless attributable in part or wholly to this

cause ; and although the habit of closing doors and windows by day—bottling up the cool air of night—does certainly reduce the heat considerably, and prevents the entrance of dust and hot winds, it may be questioned if the constitution would, in the long run, suffer more if subjected to a few degrees of higher temperature, with that indispensable requisite, light, which of all necessities of animal life is one of the most important.

In countries subject to sudden and violent storms, it is suggestive to note how easily organic remains can be transported in situations where no regular river or stream exists. I have often picked up bones of sheep and cattle among the debris in the bottoms of dried-up watercourses, many miles distant from Rawnl Pindee, and under conditions that clearly showed they had been conveyed by floods and freshets. Such occurrences are common in Central Africa, as shown by Sir Samuel Baker in connection with the Blue Nile and rivers of Abyssinia, where entire carcases of the elephant, hippopotamus, tortoise, etc., are borne along the watercourses for long distances, and deposited pell-mell where sufficient resistance is presented. The arrangement of fossil remains of like quadrupeds, in the rock-fissures of Malta, seem to indicate a similar origin, as likewise the wonderful assemblages of living and extinct animals in the caverns and rock-fissures of Gibraltar. Thus the presence of organic remains, under conditions such as have just been stated, do not necessitate the supposition that a perennial stream or river once flowed on or near the deposit.

There could be no finer picture for the landscape-painter than the view from Rawnl Pindee of a full moon crowning the top of the Peer Pinjal. That enormous barrier-chain, illuminated by the glorious orb, whilst the intervening space

is hidden in gloom, presents a scene of almost unparalleled grandeur and majesty.

A fine specimen of the panther (*F. pardus*) was shot on the low hills, near Rawul Pindee, which I afterwards identified. It was during our residence at this station that a frightful accident occurred to Captain Colby (98th Regiment), when out tiger-shooting in a jungle, about twenty miles distant from Rawul Pindee. He mortally wounded a large tiger which had infested the district for some time, carrying off cattle and whatever came in its way. The brute, however, escaped into a thicket, and both elephant and beaters refused to enter; when, dismounting, Captain Colby proceeded in quest of the tiger, which he came on suddenly, and before he could bring his rifle to his shoulder, the infuriated animal sprang upon him and felled him to the ground. Several hours afterwards the unfortunate gentleman was found with his right arm torn to pieces, and several severe wounds elsewhere from the paws and teeth, whilst within a few yards lay the tiger, dead. The injuries sustained necessitated amputation of the arm, but other internal wounds proved of such a serious nature that he died a few days after the accident.

Our regiment left Rawul Pindee towards the end of 1853 for Peshawur, crossing the Indus at Attock by means of boats. Here the river is rapid, and its channel considerably narrowed by rocks. The transport of the baggage and camels occupied two days, whilst the commissariat elephants were made to swim across—all of which took to the water without much persuasion excepting one. No force or coaxing would induce him to enter, and so he was left behind. It was a strange sight to observe the huge brutes steering their way across the river with the whole body perfectly immersed excepting the trunk. Sometimes the current during the inun-

dation proves too strong, and thus more than one fine elephant has been carried away. One old male, employed in carrying the officers' mess-tent, had been rather unruly ever since leaving Rawul Pindee, and now broke away from his picket, and made off to a neighbouring jungle, when it became necessary to bring him back by two others, in the mode usually adopted in capturing the wild ones. These furious fits of ill-temper and insubordination, called "must," resulting from excited passion (ἀφ' ἐξοργισμοῦ), are sometimes developed to a dangerous extent, and apparently very sudden in their onset. I knew a gentleman who nearly lost his life by a "must" elephant—one of six that were engaged in beating a tiger-jungle. He had dismounted, and was standing in front of the line of elephants, when one of them, with enormous tusks, rushed at him and made a vigorous attempt to impale him. Being of a spare habit of body, the elephant missed his mark, and the gentleman escaped by retreating to the rear of the others, whilst the infuriated animal made off with his driver and two persons for some distance, before he could be persuaded to rejoin his companions, which, however, he did that afternoon, and remained perfectly quiet and docile for the remainder of the excursion. There was one of the largest Indian elephants I have ever seen, chained for many months in the open air at Rawul Pindee, in consequence of his excessive ill-temper. He used to fall into periodic attacks of rage, when he continued trumpeting often all night. I have seen this animal amuse himself for hours by tossing a large heavy log of wood, some 20 feet in length and upwards of 10 inches in diameter, into the air as if it were a crowquill, and seize his "dhurra" (*Sorghum vulgare*), straw, and fodder, which he flung about, and sometimes amused himself by digging up the ground with his tusks. During an expedition into

the Hazara country, among the lower Himalayan ranges, N.W. of Rawul Pindce, several of the baggage elephants died very suddenly, but whether owing to climate or change of food could not be ascertained. The drivers told me that the climate of the hills does not agree with the animal.

A residence at Peshawur, after a sojourn in other parts of the Punjaub, is not by any means pleasant ; and perhaps, of all other stations, this is the least inviting to the naturalist, but not in any way from the absence of objects of interest as the unfortunate circumstances that prevent Europeans from travelling in the valley or surrounding mountain-ranges. My excursions were therefore confined to a few miles around the station, and even on these occasions it was always doubtful whether or not an Afredeë or one or other of the bloodthirsty hill-men, might not be lying in wait with matchlock or tulwar, ready to despatch you. This year matters assumed a more than usually serious aspect from the assassination of the chief commissioner, Colonel Mackeson, by one of the lawless and fanatical natives of the surrounding mountains, who stabbed him in the verandah of his house. Unintimidated by frequent and severe chastisements, these tribes continued their depredations among the peaceful inhabitants of the valley, and sneaked at night into the British lines, where they coolly murdered sentries on their posts. One morning, whilst searching for birds within a stone's throw of the military cordon that constantly surrounded the camp, my attention was directed to a group of natives assembled about a small mud-hut in a hollow, where a person had earned a livelihood by grinding corn with a hand-mill. It was a wretched little hovel ; nevertheless, for the sake of the few handfuls of flour one of these ruffians had murdered the poor old man, whose body, despoiled of clothing, lay half out at the doorway, presenting frightful

gashes in various parts, and, excepting his little mill, not a particle of grain or any of his goods and chattels remained. It was only a short time previously, whilst a lady and gentleman were taking a ride in the vicinity of the station, an Afredee fired on them ; the lady escaped, but her unfortunate companion was cut down and killed. The entrance of the Khyber Pass, of unpleasant memory, is distinctly visible, more especially in clear winter days ; and also from the lines may be observed the fortress-like village of Jamrood, on an elevated ground, and covering the mouth of the pass ; westward, rising one above another, are the magnificent Afghan and Kaffir mountains, including the Hindoo and Sufeid Koh ; whilst northwards and east, in long ridges, with dark intervening valleys, and running into the Peshawur plain, are the abodes of the rebellious hill-tribes, who, were it not that they quarrel a good deal among themselves, would in combination make a formidable enemy. All these vast mountain-ranges have been unexplored by the naturalist ; indeed, few Europeans have ever managed to penetrate the great valleys northward of Peshawur. Frequent inquiries made of natives who had visited some of the higher and more secluded mountain-valleys elicited scant information, and that altogether with reference to the most common large quadrupeds. The markhore was stated to be abundant in certain localities near the western bank of the Indus, above Attock, and around the Khyber Pass. Many of its horns, some almost exactly like corkscrews in form, and upwards of  $2\frac{1}{2}$  feet in length, were sent me ; others, not nearly so much twisted, presented also a more flattened appearance. A wild sheep, seemingly identical with that met with on the Salt Mountains and around Attock, is also common in these situations ; but, as far as I could learn, not on the same ranges with the former. The tiger and

panther are found along the skirts of the Himalayan chain, the former increasing in numbers to the south-east and banks of the Indus, especially near Kala Bagh. I have noted a fox distinctly different from the *Vulpes bengalensis* in the ravines around Peshawur, but never obtained a specimen, so as to ascertain if it is the same as the one observed on the Salt Mountains.

Both the gray and red ichneumons (*H. griscus et ruber*) are plentiful. Skins of the pine-marten (*M. abietum*) are imported from Afghanistan and sold in the bazaars of the city, where also those of the ermine are occasionally observed. Pigs abound along the sub-Himalayan valleys and in the Eusofraye country. Ravine or Bennet's deer is said to be plentiful. Hares (but the exact species was not determined), and a very large bustard (*O. nigriceps* ?) the *O. macqueenii*, is a regular winter visitor, and the little chukore (*A. bonhami*), is met with in suitable places.

It was interesting to note the cold-weather arrivals. The *lapwing*, *teal*, *gray lag-goose*, *cranes*, *rooks*, *European jackdaws*, the *bittern*, *chimney swallow*, *gray wagtail*, either taking up their residence, resting for a short time, or pushing southwards—some in long trains, as is the case with the large water-birds. The rough gabbling of the geese and cranes lasted often throughout the night, whilst the guttural sounds of the sand-grouse were frequent; both the common and large species (*P. caustus et arcnarius*) were often seen in flocks by day, and seemed to be regular migrants. There was a small thrush that evidently arrived in the gardens and orchards in the cold months, and is very common. It is 9 inches in length, with the upper parts olive-brown; throat and front of the neck dirty-white; the sides of the neck and breast are thickly spotted with olive-brown; belly and lower



parts dirty-white ; legs light-brown. I marked again during winter, in the Valley of Peshawur, the white-rumped martin, so closely allied, if not identical with, the bird of Europe, but did not obtain a specimen. Snipes are common in March, and quails in October.

Here the narrative of my travels must cease. The loss of the greater part of the notes referring to the subsequent portion of my sojourn in Peshawur, and second expedition to Cashmere, and my return to England in 1854, has brought about this abrupt termination. I fain hope, however, that what have been here recorded may be the means of arousing some youthful minds to an appreciation for the works of Nature, or mayhap create an ardour in the pursuit of such knowledge. If these ends are attained, I shall feel so far rewarded for all the difficulties I have had to combat with in the compiling of the notes and determination of many of the natural objects ; and this, in conclusion, leads me to expect from my readers some consideration for any defects in diction or scientific accuracy, considering that the delay in publishing the contents of this volume has been altogether brought about by the constant change of place, that left me few opportunities of consulting libraries or museums, and made me more than ever grateful to many distinguished masters of science for substantial aid, and to none more than to my friend Sir William Jardine, Bart., who has revised the proof-sheets and corrected the nomenclature ; also to Adam White, Esq., who in my absence has given material assistance towards the completion of the work.

NEW BRUNSWICK, NORTH AMERICA,

*April 1867.*

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THE END.



profusely in the Ghāt forests. A detailed list of important trees, shrubs, and common herbs is given in Sir James Campbell's *Bombay Gazetteer*, vol xv, part i.

Kanara is almost the only part of the Bombay Presidency abounding in wild animals. Within the last thirty years elephants have been shot in the District, but they are now extinct. Tigers are numerous, though they have decreased considerably in recent years. Leopards are found in large numbers, and occasionally the black variety. In the western portion of the above-ghāt division, bison are common. Black bear, *sāmbār*, the ribbed-face and mouse deer are frequently met with ; and at times the game are much harried by packs of wild dogs who pursue the deer relentlessly till they succumb from exhaustion. In the smaller forests *chital* (*Cervus axis*) are not uncommon. The absence of legal restriction on the number of deer shot has, however, led to such a reduction in their numbers that rules are now being brought into force to save them from extinction. Twenty years ago a herd of eighty *chital* was not unknown ; it would be difficult nowadays to meet with eight together. Among game-birds are the peafowl, jungle-fowl, spur-fowl, partridge, snipe, quail, duck, widgeon, teal, the green and the imperial pigeon. Red squirrels are frequently seen. Snakes are numerous, including the hamadryad or king cobra, and the python.

The climate of different parts of Kanara varies greatly in salubrity. The coast portion, though moist, is healthy ; but the forest tracts, especially the upland forests, are always malarious and at intervals are visited by especially fatal outbreaks. The most unhealthy time in the forests is the first two months of the rains and the four cold-season months. The valleys of the Kālīnadi and of its feeders are tracts where fever has a specially bad name. In December, January, and February the uplands at night and early morning are often wrapped in mist. From May 20 the south-west wind freshens and blows all day, and throughout the hot season the greater portion of the District is rendered agreeable by the prevalence of cool breezes. The temperature falls to 59° in November and rises to 91° in May. In March and April severe thunderstorms serve to cool the atmosphere. The highest annual rainfall is in Bhatkal, 156 inches, while Mundgod records only 46. Of the two divisions of the District, the lowland or coast tract has a heavier rainfall than the upland. The annual rainfall at Kārwār averages 119 inches.

In the low-lying lands near the coast heavy rainfall and a stormy sea sometimes cause floods which damage the crops. In 1831 and again in 1848, owing to the tempestuous weather, the Honāvar coast lands were flooded with salt water and the crops destroyed.

In the third century B.C. Asoka sent missionaries to Banavāsi in

Kanara. From numerous inscriptions the country appears to have been controlled successively by the Kadambas of Banavāsi, the Rattas, the Western Chālukyas, and the Yādavas. It was for long a stronghold of the Jain religion. In the sixteenth century, when the Portuguese established themselves upon the coast, Kanara was subject to the Vijayanagar kings. It is said to have been extremely rich and prosperous, and for a long period firmly withstood the efforts of the Muhammadan Sultāns of the Deccan to extend their conquests to the south. Eventually, after the crushing defeat at Tālikotā (1565) and the sack of the capital city of Vijayanagar, the local chiefs of Kanara assumed independence. The Musalmāns then attacked the Portuguese settlements on the coast, but were unable to subdue them. The power of Bijāpur, however, was generally established over Kanara, and continued until the Marāthās obtained an ascendancy about 1675; but with the advance of Aurangzeb the country passed under the Mughals after the fall of Bijāpur in 1686, and the chiefs of Sonda and Bednur tendered their submission and tributes. Some time subsequent to 1700 the Marāthās again held Kanara. In 1763 Haidar Alī captured Bednur and obtained an immense booty. Sonda and the sea-coast were also subdued by him, and this brought Haidar into collision with the Marāthās; but he was able to maintain his conquests, and even to extend them as far north as the Kistna. War breaking out with the British, Tipū lost Honāvar in 1783. After the defeat and death of Tipū at Seringapatam, Sonda was annexed by the British in 1799. It included the Kanara country above the *ghāts*, which had been so desolated by war and pillage that there was little to govern except trees and wild beasts. This, with the coast tract taken from Haidar, was attached to the Madras Presidency in 1799, and placed in charge of Munro. It continued to form part of Madras until 1861. In that year, owing to its relations with Bombay and to the fact that the forests supplied the Bombay dockyard with timber for ship-building, North Kanara was transferred to the Presidency of Bombay.

The chief buildings of interest in the District are the Jain temples of Banavāsi, Gersoppa, and Bhatkal. The temple at Banavāsi, which is attributed to the legendary Jakhanāchārya, is of considerable dimensions. It is ornamented with sculptured figures and designs, and has a short Dravidian spire. A loose slab in the courtyard bears an inscription of the second century A.D. At Nagarbastikere near the modern Gersoppa several Jain temples mark the site of the old town. They are much damaged by time, but the images representing the twenty-third and twenty-fourth Tīrthankars are still intact. They are finely modelled in black basalt. At Bhatkal fourteen Jain *basīs* are

still preserved, dating from the reign of Channabhaira Devī in the fifteenth century. At the same place are three stone tombs of European merchants who were buried in the year 1637. The numerous Hindu temples at Gokarn are ascribed to the fifteenth century. That of Mahābaleshwar is the most imposing. Many Kanarese inscriptions have been found at Bhatkal, Gersoppa, and Banavāsi. At Ulvi in Supa there are a few Lingāyat caves and the well of the Lingāyat saint Basava.

The Census of 1872 showed a total population of 398,498, and in the next nine years the population increased to 421,932. By 1891 it had further increased to 446,453. The Census of 1901 recorded a population of 454,490, or 115 persons per square mile, residing in 8 towns and 1,281 villages. The *tāluka* distribution was :—

Tāluka.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Haliyāl		1	105	35,122	53	+ 13	1,498
" Supa <i>petha</i>	1,057	1	132	21,008		- 35	959
Kārwār	281	1	54	58,460	208	+ 10	6,254
Yellāpur		...	119	22,814		- 2	1,590
" Mundgod <i>petha</i> .	760	...	77	16,739	52	+ .06	845
Ankola.	375	...	90	39,665	106	+ 7	2,357
Sirsi	490	1	244	53,232	109	- 1	6,341
Kumta.	224	2	111	66,040	295	+ 5	7,700
Siddāpur	332	...	197	41,342	125	- 3	3,428
Honāvar		1	93	62,402		+ 5	5,227
" Bhatkal <i>petha</i>	426	1	59	37,666	235	+ 10	1,877
District total	3,945	8	1,281	454,490	115	+ 2	38,076

The chief towns are the municipalities of KĀRWĀR, the head-quarters of the District, KŪMTA, BHATKAL, HONĀVAR, and SIRSI. Owing to the large areas of forest the country above the *ghāts* is very sparsely populated, and in parts the population is decreasing. Much of the labour required to cultivate the upland tracts is therefore drawn from outside, the chief sources being Goa, Sāvāntvādi State, and the Coondapoor *tāluka* of South Kanara. The language of the District is Kanarese, which is spoken by 57 per cent. of the total population. On the coast north of Gokarn and in the Supa *petha*, Konkani replaces Kanarese as the common tongue.

Among the Brāhmins of Kanara (72,000) the most important are the Haviks (41,000), who are chiefly engaged in cultivation, being the owners of the areca-nut gardens of Sirsi and Siddāpur *tālukas*. They are reputed to have come originally from Southern India, and to have intermarried with the local cultivating caste of Gaudas. The second

Brāhman caste of importance is the Gaud Sāraswat (25,000), also known as Shenvi, with the two kindred sub-castes of Bardeskar and Kudaldeskar. The Gaud Sāraswats, who are very fair, claim a northern origin, and certainly came from Goa in the early part of the sixteenth century. They commonly eat fish, on which account other Brāhmins usually deny them the full status of their caste. Closely allied to the Gaud Sāraswats, and probably in former times one caste with them, are the Sāraswats (2,000), also known as Kushasthali or Shenvipaiki, many of whom have lately come from South Kanara. Between Sāraswats and Gaud Sāraswats there is chronic enmity. The establishments of the Government offices in the District are largely recruited from the former.

Apart from the Brāhman castes, the special interest of the North Kanara population centres in the primitive classes, such as the Halvakki Vakkals (4,000), Gamvakkals (12,000), Halepaiks (52,000), Mukris (5,000), Kumārpaiks (9,000), and Harakantras (6,000), who have much in common with the population of Malabar and South Kanara, and but little affinity with the rest of the Bombay Presidency. Among these primitive people there exists to the present day an organization by *bālīs* or exogamous divisions strongly suggestive of totems. Thus, in the caste of a *bāli* named after the *sāmbār* deer, the members may not harm the animal, and do not intermarry. Descent is traced through females. With the gradual Brāhmanizing of these castes, such as the recent promotion of the Kumārpaiks to Kshattriya rank, it is to be expected that this organization by *bālīs* may in time disappear. It has survived long enough, however, to throw valuable light on the nature and origin of the Marāthā *devaks* in the Deccan. The Marāthās in North Kanara number 48,000, and are all cultivators, apparently a relic of the former Marāthā dominion. Locally they are collectively described as *Arer* or Aryans. It is to be noted that the Gangāvali river is popularly considered the extreme southern limit of the Aryan race and languages in India. South of this river the dark complexion, coarse features, Dravidian speech, and primitive customs of the people seem to lend much support to the popular view. Muhammadans (29,000) are distributed as follows: Pathāns, 3,000; Saiyids, 2,000; Shaikhs, 19,000. Besides the regular Muhammadan population (descendants of local converts to Islām), generally in poor circumstances, employed chiefly in agriculture and by Government as messengers and police, there are, in Kanara, two special bodies of foreign Muhammadan settlers. Of these, the more important and well-to-do are the Navāyats or seamen, representatives of the colonies of Arab merchants, of whom a remnant still exists along the whole coast-line of the Bombay Presidency, from Gogha southwards. The other foreign Musalmān community is the Sidīs, descendants of African slaves formerly owned by the Portuguese. Although they have intermarried

for several generations with the low-caste population of the District, the Sidīs have not lost their original peculiarities. They still possess the woolly hair and black skin of the pure negro. Some of them have been converted to Christianity, and some have become absorbed in the lower Hindu castes. They are for the most part very poor, and, settled in remote forests, live on the produce of little patches of rude cultivation.

The Christians in the District, who are almost all Roman Catholics, belong to two classes, the first of which consists of a few families from Goa, of Portuguese extraction, though much mixed by intermarriage with the natives of the country; the second are descendants of local converts to Christianity. Christians of the higher class are clerks, the rest principally artisans and labourers. The total number of native Christians in 1901 was 16,126, of whom 15,116 were Roman Catholics. The chief centres of Roman Catholic Christians are Honāvar, Kumta, and Kārwār. During their time of power and friendship with the Vijayanagar kings (1510-70), the Portuguese were probably allowed to make converts. But, as far as the record of treaties remains, it was during the early part of the eighteenth century, after the Mughals had withdrawn and when the Sonda chief in the north and the Bednur chiefs in the south were their close allies, that the Portuguese were most successful in spreading Christianity along the Kanara coast. When in 1784 Tipū succeeded in driving the British out of Kanara, he determined, on both political and religious grounds, to convert the native Christians of Kanara to Islām. After taking a secret census he dispatched troops who arrested 60,000, or, according to other accounts, 30,000 out of the 80,000 Christians found. The churches were dismantled and every trace of the Christian religion disappeared. Except infirm women and children, the prisoners were marched under a strong military escort to Seringapatam, then the capital of Mysore. The men were circumcised, the unmarried girls carried away as concubines, and many of the married women were badly treated. The change of climate from the coast to the Mysore uplands, harsh treatment, and the unhealthiness of some of the places to which they were sent, so broke the health of the converts that within a year 10,000 are said to have perished. A few Protestants are found in the towns of Kārwār and Honāvar. The only mission in the District is the Basel German Mission, with its head-quarters at Honāvar. It was established in 1845 and supports five schools.

The cultivated portions of the lowlands are either sandy plains lying along the shore and the banks of rivers, or narrow well-watered valleys, which are for the most part planted with rice, coconut groves, and areca-nut gardens. In the uplands the soil is generally a stiff clay, retentive of moisture. Owing to the

#### **Agriculture.**

want of inhabitants, and also to the malarious climate, many fertile and well-irrigated valleys lie waste and covered with forest ; and difficulty is experienced in finding a sufficiency of labour for the lands already under cultivation.

The District is entirely *ryotwāri*. The chief statistics of cultivation in 1903-4 are shown below, in square miles :—

<i>Tāluka.</i>	Total.	Cultivated.	Irrigated.	Cultivable waste.	Forest
Haliyāl . .	1,056	107	5	22	914
Kārwar . .	281	50	3	14	215
Yellāpur . .	760	71	2	111	563
Ankola . .	375	42	4	15	312
Sirsi . .	491	85	...	13	380
Kūmta . .	224	55	4	16	148
Siddāpur . .	332	46	...	6	264
Honāvar . .	426	72	12	22	325
Total	* 3,945	528	30	219	3,121

\* These areas are based on the latest information.

Rice, of which there are many varieties, is the staple crop, the area in 1903-4 being 297 square miles. *Jowār*, chiefly grown in the Haliyāl *tāluka*, occupied one square mile. *Rāgi*, occupying 8 square miles, is grown in the hills for the food of the poorer classes. Pulses occupied 10 square miles, the chief being *mūg*, *kulith*, and *udid*, mostly grown in the coast *tālukas*. Sugar-cane and safflower are also grown to a considerable extent ; and coco-nuts, areca-nuts, the lesser cardamoms (*Elettaria Cardamomum*), and pepper are produced in gardens in large quantities for home consumption and for export. The cultivation of coffee has been tried but proved unprofitable. Rice and garden lands are irrigated, the water being obtained from perennial streams. Near villages, especially on the coast, there are groves and avenues of Alexandrian laurel, which attains a large size. East Indian arrow-root grows wild and is also cultivated in some parts. The coco-nut palm is common along the coast, and is the chief liquor-yielding tree in the District. The palms, grown solely for their nuts, are calculated to yield, on good coast garden land, a net yearly profit of about Rs. 50 per acre. The areca-nut gardens, which are situated in the upland valleys, are surrounded by strong fences, within which are planted rows of coco-nut, jack, and mango trees. The *pān* or betel-leaf vine (*Piper Bette*) is extensively grown ; also the areca palm. The upland gardens further contain pepper, cardamoms, ginger, plantains ; and sometimes pummelo, orange, lime, and iron-wood trees (*nāg-chāmpa*) are found in these higher tracts. Of vegetables, the *bhendi* is largely grown on the coast ; and the egg-plant, the water-melon, and various pumpkin gourds and cucumbers are common.

Formerly, in the more open parts of the forest, nomadic cultivation by brushwood burning (*kumri*) was carried on, principally by tribes of Marāthā extraction. The chief difficulty experienced in regard to cultivation in North Kanara since the practice of *kumri* was stopped is that known as the *betta* and *soppu* question. *Betta* is forest land assigned to the adjacent garden cultivation for the provision of *soppu* or leaf manure, which is indispensable in the cultivation of betel, pepper, and cardamoms. The improvident use of *betta* assignments, leading to the destruction of the forest on the land, results in a constant demand for further assignments, which cannot be continuously met unless the forest is to be entirely sacrificed to cultivation. Efforts are being made to come to a final settlement with each garden holder, by the allotment of an area of *betta* that is adequate for his requirements if treated with proper care. The salt marshes on the coast are offered for reclamation on very favourable terms. The cultivators have little recourse to advances under the Land Improvement and Agriculturists' Loans Acts. During the decade ending 1903-4 only 1.5 lakhs was advanced, of which Rs. 27,000 was lent in 1899-1900 and Rs. 67,000 during the last three years of the period.

The cattle are inferior everywhere, especially below the Ghāts. Kārwar, Kūmta, Ankola, and Honāvar contain few domestic animals of local breed. In Kārwar, Kūmta, and Honāvar the Goanese and other Christians rear pigs. Fowls are kept by all classes except Brāhmans.

Of the total area of cultivated land, 30 square miles or 6 per cent. were irrigated in 1903-4. Canals and wells supply about 2 square miles each, tanks 4 square miles, and other sources 22 square miles. The Māvinkop tank supplies 579 acres in the Haliyāl *tāhuka*. The other special irrigation works are insignificant. In 1903-4 there were 18,205 wells and 5,534 tanks used for irrigation. Rice and garden crops are watered by runnels brought from streams or rivers. Near the coast in the dry season, dams of earth, stones, and tree branches are thrown across streams and the lands near are watered, the dam being removed at the close of the dry season or left to be swept away by the floods. Some places are watered by canals from ponds. Where the level of the water is below the field, if not very deep, it is raised in a basket hung on ropes and swung through the water by two men. If water has to be raised from a greater depth, the lever and bucket lift is worked by either one or two men; and, if the depth is still greater, it is drawn by the leathern bag worked by a pair of bullocks. When brought to the surface, the water is generally carried to the crop along the hollowed trunk of a palm-tree. The cost of constructing wells varies from Rs. 200 in sandy soil to Rs. 700 in the loam.

The forests of North Kanara are very extensive. Of the total area,

3,262<sup>1</sup> square miles are under forest, of which 548 square miles are 'protected.' The Forest department has charge of the whole area. The forests are divided into three Forests. sections: the table-land above the Ghāts, the main range, and the western spurs. The first of these contains splendid forests of teak, black-wood, and other trees 80 to 150 feet high, with fine clean stems 60 to 90 feet high and 5 to 12 feet in girth. The central belt has some of the finest forest of the District, including the magnificent teak tracts along the Kālīnadi, Bedti, and Gangāvali rivers. Bamboos of several valuable kinds grow over the whole of the District. The more important trees in the Kānara forests are *khair*, *hedu*, *siras*, *dhaura*, *kāju*, *moha*, *phanas*, *undi*, *sisu*, *abms*, *jāmbul*, *nandruk*, *bhirand*, *nan*, mango, sandal-wood, tamarind, teak, and *hirda*.

The forest revenue in 1903-4 exceeded 9 lakhs, mainly derived from the value of the timber sold from the dépôts. The cultivators are allowed to gather dry wood for fuel and leaves for manure, and to cut bamboos and brushwood for their huts and cattle-sheds. They are also supplied, free of charge, with such timber as they require for their own use. In former years most of the produce of the Kanara forests went westwards to the sea-coast, finding its chief markets in Bombay and Gujarāt. Of late years the sea trade has fallen off, and the bulk of the timber is now taken eastward to the open country in and beyond Dhārwar.

Iron ore is found in different places in the main range and spurs of the Western Ghāts, and in the island of Basavrajdrug about half a mile off the coast of Haldipur and about 2 miles from the town of Honāvar. The building stone in general use below the Ghāts is iron clay or laterite, and sometimes granite or granitic schist and clay-slate. Above the Ghāts it is nearly always granite. In the same tract lime is usually made from limestone pebbles dug out of the banks of streams. On the coast, lime is prepared by burning coracle and oyster shells, which are abundant in most of the creeks and rivers, especially in the Kālīnadi.

In Kūmta and Banavāsi there are skilled carvers of sandal-wood. A few hundred persons are employed in cutch-boiling. In the Ankola *tāluka* are 131 salt-works, Trade and communications. of which 107 were working in 1903-4 and produced 39,000 maunds of salt. With these exceptions North Kanara has no industries worthy of notice.

The ports of Bhatkal and Honāvar were known in the early centuries of the Christian era, and rose to importance in the fifteenth and sixteenth centuries as centres of the trade in horses from the Persian Gulf. At the present day the chief ports are Kārwar, Kūmta, Ankola,

<sup>1</sup> This figure is taken from the Forest Administration Report for 1903-4.



Honāvar, and Bhatkal, with a total trade in 1903-4 of 61 lakhs: namely, imports 20 lakhs, and exports 41 lakhs. The principal articles of export are rice, timber, coco-nuts, and spices; imports are piece-goods, metals, sugar, and spirits. Cotton from Dhārwar, formerly exported in large quantities from Kūmta, now goes by rail direct to the port of shipment for Europe.

The Southern Mahratta Railway crosses the north-west angle of the District. North Kanara is traversed from north to south by two main roads, one above the Ghāts and one along the coast, and by four main roads at right angles to them which climb the Ghāts and link up the principal coast towns with Belgaum, Dhārwar, and Mysore State. These roads run from Kadra to Belgaum via Supa, from Kārwar to Dhārwar via Yellāpur, from Kūmta to Dhārwar via Sirsi, and from Honāvar to Mysore territory via the Falls. In 1904 the District possessed 340 miles of metalled and 885 of unmetalled roads. All these, except 24 miles of metalled and 585 of unmetalled roads in charge of the local authorities, are maintained by the Public Works department. Avenues of trees are planted along 166 miles. There is steamer communication with Bombay during the fair season only, the steamers of the Bombay Steam Navigation Company calling at Kārwar, Gokarn, Kūmta; Honāvar, and Bhatkal twice a week on their way to and from Mangalore.

North Kanara, with an assured rainfall, is practically exempt from famine. Bad seasons have been known, but the records point to the fact that local scarcity has only occurred owing to an influx of immigrants from the Deccan and Ratnāgiri, or to the depredations of dacoits causing hindrance to the arrival of supplies. The District suffered from these causes in 1806, when men were forced to feed on roots and rice husks, and about 3,000 persons are said to have died of want. In the famine of 1877 relief was necessary on a small scale.

The Collector is usually assisted by a member of the Indian Civil Service and a Deputy-Collector. The District comprises the eight *tālukas* of ANKOLA, HONĀVAR, KĀRWĀR, KŪMTA, SIDDĀPUR, SIRSI, HALIYĀL, and YELLĀPUR. The *mahāls* or *pethas* are Supa attached to Haliyāl, Mundgod to Yellāpur, and Bhatkal to Honāvar *tāluka*. There are three Forest officers.

There is a District and Sessions Judge at Kārwar and four Subordinate Judges. The District Judge acts as a court of appeal from the Subordinate Judges, of whom one decides all original suits without limit in value. Three of the Subordinate Judges exercise the powers of a Small Cause Court. There are twenty-five officers to administer criminal justice in the District. Crime is not of a serious nature below the Ghāts, save an occasional case of forgery; while

above the Ghāts the most common offences are murder and dacoity, usually committed by persons coming from Dhārwar District.

The ancient Hindu revenue system involved theoretically the levy of a sixth part of the gross produce of the land as the share of the State; but in practice much more than a sixth was taken under various pretexts, either in kind or commuted into money. Probably in late years as much as one-third was exacted; but when Haidar Ali and Tipū held Kanara, the District was rack-rented to such a ruinous extent that population was diminished by a third, and only half the nominal revenue could be collected. When the District was taken over by the British, it was at first proposed to introduce a permanent settlement; but, in consideration of its desolate condition, large reductions of revenue were made as a temporary measure, and a permanent settlement postponed. Before many years the opinion was expressed that the Government demand was far too high and unequal in its incidence, and operated against the spread of cultivation; and after an unsuccessful attempt to fix the revenue upon an average of past receipts, a survey was begun in 1822. This was rather a rough inspection than an accurate survey, but it showed that the area under cultivation was larger than had been supposed. By fixing the assessments at about a third of the produce, the general rate of taxation was lowered; but the revenue was increased and paid without difficulty. Some progress was made with the survey on this principle, when it was discovered that, as the rate was the same on all lands, good or bad, the worst lands were being abandoned; and it was then decided to classify the lands according to their quality. In 1848 a minute was recorded by the Collector, demonstrating that it was not possible to assess the District satisfactorily without positive information as to the extent and capabilities of the land and the amount of Government as distinct from private lands, and pointing out that private owners were on all sides extending their boundaries at the expense of Government. Still it was considered that the expense of a survey could not be afforded, and nothing was done until the District was transferred from Madras to Bombay. On its transfer, a survey was introduced, the greatest difficulty being experienced in identifying boundaries of villages and fields. Between 1864 and 1867 a survey settlement was made in 199 villages above the Ghāts, the whole District being completed by 1891. As the settlement spread towards the coast, the landholders showed signs of opposition; for it was found that the old assessments were far short of even a moderate rent, and that the revenue would be doubled. They refused to pay the new rates, and appealed to the civil courts for redress, carrying their suits to the High Court, which finally upheld the right of Government to revise the assessments in Kanara, and since then opposition

61 lakhs:  
principal  
ports are  
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has died out. The survey increased the land revenue by 13 per cent. in Honāvar, by 36 per cent. in Ankola and Kūmta, by 63 per cent. in Yellāpur, and by 115 per cent. in Kārwar. The revision survey of three *tālukas* was completed between 1895-1900, the assessment and area remaining unaffected. The total assessment on Government occupied land is now 10 lakhs. The average assessment per acre is: on 'dry' land 7 annas, on rice land Rs. 2-5, and on garden land Rs. 11-15.

Collections on account of land revenue and revenue from all sources have been, in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . . .	7,60	2,96	10,18	13,58
Total revenue . . .	13,60	16,07	16,67	24,63

There are six municipalities in the District—KĀRWĀR, KŪMTA, SIRSĪ, HALIVĀL, HONĀVAR, and BHATKAL—besides two temporary municipalities at GOKARN and ULVI. Outside the limits of these, local affairs are managed by the District board and eight *tāluka* boards. The total income of these bodies in 1903-4 was Rs. 1,18,000, the principal source being the land cess. The expenditure was Rs. 1,38,000, including Rs. 58,000 expended on roads and buildings.

The District Superintendent of police is assisted by 2 inspectors. There are 14 police stations in the District; and the total strength of the police force is 646, including 12 chief constables, 138 head constables, and 496 constables. The District jail at Kārwar has accommodation for 252 prisoners. In addition, there are 10 subsidiary jails and one lock-up in the District, with accommodation for 180 prisoners. The daily average number of prisoners in 1904 was 189, of whom one was a female.

Compared with other Districts of the Presidency, Kanara stands fifth in point of literacy. In 1901, 8.4 per cent. of the population (15 males and 1.1 females) could read and write. Education has spread widely of late years. In 1865-6 there were only 16 schools, attended by 929 pupils. By 1880-1 the number of pupils had increased to 6,511, and by 1890-1 to 12,214. In 1903-4 there were 208 public and 26 private institutions, attended by 9,689 male and 2,062 female pupils. The public institutions include one high school, 10 middle, and 197 primary schools. Of these one is maintained by Government, 147 are managed by local boards, and 37 by municipalities, 19 are aided and 4 unaided. The total expenditure in 1903-4 was Rs. 82,500, of which Rs. 16,000 was derived from fees, and Rs. 17,000 from Local funds. Of the total, 66 per cent. was devoted to primary education.

There is a hospital at Kārwar, and 12 dispensaries, including a railway medical institution, are situated in the District, with accommodation for 85 in-patients. In these institutions 50,500 patients were treated in 1904, of whom 749 were in-patients, and 941 operations were performed. The total expenditure was Rs. 22,800, of which Rs. 10,060 was met from municipal and Local funds.

The number of persons successfully vaccinated in 1903-4 was 11,850, representing a proportion of 26 per 1,000, which slightly exceeds the average for the Presidency.

[Sir J. M. Campbell, *Gazetteer of the Bombay Presidency*, vol. xv (1883); *Selections from the Records of the Bombay Government*, No. CLXIII (1883).]

**Kanara, South.**—The more northerly of the two Districts on the west coast of the Madras Presidency, lying between  $12^{\circ} 7'$  and  $13^{\circ} 59'$  N. and  $74^{\circ} 34'$  and  $75^{\circ} 45'$  E., with an area of 4,021 square miles.

The vernacular name *Kannada* ('the black country') really refers to the black soil of the Kanarese-speaking country in the Southern Deccan. Though a historical misnomer as applied to the western seaboard, it yet marks its long subjection to the Kanarese princes who held sway over the Western Ghāts. The District is bounded on the north by the Bombay Presidency; on the east by Mysore and Coorg; on the south by Coorg and Malabar; and on the west by the Arabian Sea. The scarp or watershed of the WESTERN GHĀTS forms a natural frontier on the east. Approaching in the extreme north within 6 miles of the sea, the main line of this range soon swerves abruptly eastward round the Kollūr valley. Through this passes a road leading to the Honnār Magane, a small tract above the Ghāts belonging to South Kanara, but separated from it by Mysore territory. South of the valley rises the prominent sugar-loaf peak of Kodachādrī, 4,411 feet; and thence, a precipitous cliff-like barrier with an average elevation of over 2,000 feet, the Ghāts run south-east to the KUDREMUKH, the highest peak in the District, 6,215 feet above sea-level. From this point they sweep east and south round the Uppinangadi *tāluk* to join the broken ranges of the Coorg and Malabar hills on the southern boundary of the District. South of the Kudremukh their character entirely changes. To the north few passes or prominent heights break the clearly defined watershed. On the south, deep valleys pierce the main line, flanked by massive heights such as Bālārāyandurga (4,940 feet) and SUBRAHMANYA hill (5,626), while a profusion of forest-clad spurs and parallel ranges makes the scenery as varied and picturesque as any in the Presidency. West of the Ghāts a broken laterite plateau slopes gradually towards the sea. The general aspect of the District has been well described as a flatness uniform

Physical  
aspects.

but infinitely diversified. Much of the level surface is bare and treeless, and strewn with denuded granite boulders; but numerous miniature hill ranges, well wooded save where stripped for firewood near the coast, and bold isolated crags rising abruptly from the plain, prevent monotony.

Local tradition states that South Kanara was part of the realm wrested by the mythic Parasu Rāma from the sea, and modern geology seems to confirm the view that it is an ancient sea-bed. Water is at any rate the element to which the District owes its distinctive characteristics. The monsoons have furrowed innumerable valleys in the laterite downs, and fertilized them with rich soil washed down by the streams. Valley opens upon valley in picturesque and diversified similarity, all converging at last into the main valleys through which the larger rivers of the District run. Along the backwater which these rivers form at the coast are found large level stretches of fertile rice and garden land. From the sea, indeed, the coast-line presents an endless stretch of coco-nut palms, broken only by some river mouth or fort-crowned promontory where the main level of the plateau runs sheer into the sea.

The rivers of the District, though numerous, are of no great length. Raging torrents in the monsoon, owing to the enormous volume of water they have to carry off, in the hot season they shrink to shallow channels in the centres of their beds. Rapid in their early course, they expand at the coast into shallow tidal lagoons. In the extreme south a number of rivers rising in the Malabar and Coorg hills form a succession of backwaters giving water communication with Malabar. At Kāsaragod the CHANDRAGIRI (Payaswani) flows into the sea past an old fort of the same name. The Netrāvati, with its affluent the Kumāradhārī, and the Gulpūr river, which have a common backwater and outlet at Mangalore, drain the greater part of the Mangalore and Uppinangadi *tālūks*. The Swarnanadī and the Sītānadī drain most of the Udipi *tālūk* and have a common outlet at the port of Hangārkatta. A picturesque and important backwater studded with fertile islands is formed to the north of Coondapoor town by a number of rivers draining much of the Coondapoor *tālūk*.

The geology of South Kanara has not yet been worked out. It is probable that in the main it consists of Archaean gneisses of the older sub-groups, possibly with representatives of the upper thinner-bedded more varied schists (Mercāra schists) and plutonic igneous rocks where the District touches Mysore and Coorg. Laterite and ordinary coastal alluvium are common in the low-lying parts.

As might be expected from the heavy rainfall (145 inches), the flora of the District is exceedingly varied. The forests are both evergreen and deciduous, and the more important timber trees are mentioned

under Forests below. Of fruit trees, the coco and areca palms and the jack and mango are the most important. There are, however, few good grafted mango-trees, except in Mangalore town. The palmyra palm is found everywhere, and the cashew-tree is very common, especially near the coast. The bamboo grows luxuriantly. Considerable stretches of sandy soil along the coast have been planted with the casuarina. The betel vine, yams of various kinds, and plantains are raised in gardens, and turmeric and chillies as occasional crops. Flowers of numberless kinds grow in profusion, and in the monsoon every hollow and wall sprouts with ferns and creepers.

The fauna is varied. Leopards are found wherever there is cover, and annually destroy large numbers of cattle. The tiger is less common. On the Ghāts bison (*gaur*) and *sāmbār* attract sportsmen, and the black bear is also found, while elephants are fairly numerous in the extensive forests of the Uppinangadi *tāluk*. Deer and monkeys do considerable damage to cultivation near the Ghāts. The jackal is ubiquitous. The handsome Malabar squirrel (*Sciurus indicus*) is common in the forests, and flying foxes have established several flourishing colonies. Among rarer animals are the flying squirrel, lemur, porcupine, and pangolin. Many species of snakes exist, and the python and the hamadryad (*Ophiophagus elaps*) grow to an immense size. Crocodiles and otters are found in the larger streams. There is good fishing in the rivers, mahseer being numerous; but dynamiting, poisoning, and netting by the natives have done much to spoil it.

The climate is characterized by excessive humidity, and is relaxing and debilitating to Europeans and people of sedentary habits. The annual temperature at Mangalore averages 81°. The heat is greatest in the inland parts of the District during the months of March, April, and May. Malarial fever is rife during the hot season and the breaks in the monsoon wherever there is thick jungle. From November to March a chilly land wind blows at night which, though it keeps the temperature low, is unhealthy and reputed especially dangerous to horses.

The annual rainfall averages 145 inches. It is smallest on the coast line, ranging from 127 inches at Hosdrug in the south to 141 inches at Coondapoor in the north. The farther inland one goes the greater is the amount, Kārkala close to the Ghāts having an average of 189 inches. In 1897 the enormous fall of 239 inches was recorded at this station. Of the total amount, more than 80 per cent. is received during the four months from June to September in the south-west monsoon. The rains may be said never to fail, and the District has only once known famine. Floods, however, are rare, as the rivers have usually cut themselves very deep channels.

Little is known of the early history of South Kanara. Inscriptions show that it was included in the kingdom of the Pallavas of Kānchi, the modern Conjeeveram in Chingleput District,

**History.** whose earliest capital appears to have been Vātāpi or Bādāmi, in the Bijāpur District of Bombay. Its next rulers seem to have been the early Kadamba kings of Banavāsi, the Banaousir of the Greek geographer Ptolemy (second century A.D.), in North Kanara District. About the sixth century they were overthrown by the early Chālukyas, who had established themselves at Bādāmi, the old Pallava capital. In the middle of the eighth century these were expelled by the later Kadamba king Mayūravarma, who is said to have introduced Brāhmans for the first time into the District. His successors seem to have ruled the country as feudatories of the Rāshtrakūtas of Mālkhed in the present Nizām's Dominions, and of the Western Chālukyas of Kalyāni in the same State. About the twelfth century the District was overrun by the Hoysala Ballālas of Dorasamudra, the modern Halebīd in Mysore. But there were frequent contests between them and the Yādavas of Deogiri, the modern Daulatābād in the Nizām's Dominions, until in the fourteenth century they were both overthrown by the Delhi Muhammadans, practically securing the independence of the local chiefs. In the first half of the fourteenth century the District passed under the Hindu kings of Vijayanagar. About this time Ibn Batūta, the Muhammadan traveller, passed through it, and has left an interesting, though somewhat exaggerated, description of what he saw. During the next century the Portuguese made their first settlements on the west coast, and Vasco da Gama himself landed in 1498 on one of the islands off Udipi. After the battle of Tālikotā in 1565, in which the last Vijayanagar king was defeated by the united Muhammadans of the Deccan, the local Jain chiefs achieved independence. But in the beginning of the next century almost all of them were subdued by the Lingāyat ruler, Venkatappa Naik, of Ikkeri, now a village in the Shimoga District of Mysore. During the next century and a half the Ikkeri chieftains, who had meanwhile removed their capital to Bednūr, the present Nagar in Mysore, continued masters of the country, though most of the old Jain and Brāhman chiefs seem to have retained local independence.

British connexion with the District begins about 1737, when the factors at TELlicherry, taking advantage of a hostile move by the Bednūr Rājā, obtained commercial advantages, including a monopoly of all pepper and cardamoms in certain tracts. Haidar Alī, the Muhammadan usurper of the Mysore throne, after his conquest of Bednūr in 1763 took Mangalore and made it the base of his naval operations. The place was captured by the English in 1768, but, on Haidar's approach a few months later, was evacuated. On the out-

break of war with Haidar again in 1780. General Mathews, Commander-in-Chief of Bombay, landed opposite Coondapoor and took it. On his subsequent march north to Bednūr, he also took Hosangadi and the Haidargarh fort. Bednūr itself next fell, but the arrival of a large relieving force under Tipū, Haidar's son, forced Mathews to capitulate. Tipū then besieged Mangalore, which surrendered after a protracted struggle. During this war, Tipū, suspecting that the native Christians of the District were secretly aiding the English, deported large numbers of them to Mysore and forcibly converted them to Islām. During the final war with Tipū, which ended in his death at the fall of Seringapatam in 1799, the District suffered severely from the depredations of the Coorgs. By the Partition Treaty of the same year it fell to the British. To the country thus acquired was added in 1834, on the annexation of Coorg, the portion of that province which had been ceded to the Coorg Rājā in 1799. In 1862 the country north of the Coondapoor *tāluk* was transferred to the Bombay Presidency, leaving the District as it now stands to the administration of Madras.

The chief objects of archaeological interest in South Kanara are its Jain remains, which are among the most remarkable in the Presidency. The most noteworthy are found at KĀRKALA, MŪDBIDRI, and YENŪR, in a part of the District long ruled by Jain chiefs, of whom the most important were the Bhairarasa Wodeyars of Kārkala. Under this family, which migrated from above the Ghāts, building in stone is supposed to have been introduced into this part of the west coast. Fergusson states that the architecture of the Jain temples has no resemblance to the Dravidian or other South Indian styles, but finds its nearest affinity in Nepāl and Tibet. There is no doubt that it is largely a reproduction of the architectural forms in wood used in the country from early times. The remains are of three kinds. The first are the *bettas*, or walled enclosures containing colossal statues. There is one of these statues at Kārkala and another at Yenūr. The former is the larger, being 41 feet 5 inches high, and is also the more striking, as it stands on the top of a rocky hill overlooking a picturesque lake. They both have the traditional forms and lineaments of Buddha, but are named after Gomata Rāya, a forgotten and perhaps mythical Jain king. They are monolithic; and the method of their construction, whether they were hewn out of some boulder which stood on their sites, or whether they were sculptured elsewhere and removed to their present positions, is a mystery. A still larger statue, also said to be of Gomata Rāya, at Srāvana Belgola in Mysore is the only other example known. An inscription on the Kārkala statue states that it was erected in A.D. 1431. The second class of Jain remains are the *bastis* or temples. These are found all over the District, the most famous group being



at Mūdbidri, where there are eighteen of them. With plain but dignified exteriors, clearly showing their adaptation from styles suited to work in wood, and greatly resembling the architecture common in Nepāl in the reverse slope of the eaves above the veranda, nothing can exceed the richness and variety with which the interior is carved. The largest *bastī* at Mūdbidri is three-storeyed, resembling somewhat the pagodas of the Farther East, and contains about 1,000 pillars, those of the interior being all carved in the most varied and exuberant manner. The last variety of Jain antiquities are the *stambhas* or pillars. Though not peculiar to Jain architecture, the most graceful examples are found in connexion with the temples of that faith. The finest is at Haleangadi near Kārkala. It is 50 feet from base to capital, the shaft being monolithic and 33 feet in length, and the whole gracefully proportioned and beautifully adorned. BĀRKŪR, once the Jain capital of the region destroyed by Lingāyat fanatics in the seventeenth century, probably excelled the rest of the District in the number and beauty of its buildings; but these are now a mere heap of ruins.

Serpent stones in groves and on platforms round the sacred fig-trees are numerous, bearing witness to the tree and serpent worship imposed by the influence of Jainism and Vaishnavism on the primitive demon and ancestor worship of the country. The Hindu temples are as a rule mean and unpretentious buildings, though many of them, such as that to Krishna at UDIPĪ and the shrines at SUBRAHMANYA, Kollūr, Sankaranārāyana, and Koteswar, are of great antiquity and sanctity. Forts are numerous, especially along the sea-coast, but of little importance archaeologically. That at BEKAL is the largest, and was formerly a stronghold of the Bednūr kings.

South Kanara is divided into the five *tālūks* of Coondapoor, Kāsaragod, Mangalore, Udipi, and Uppinangadi, and includes also the

**Population.** Amindivi Islands in the Indian Ocean. The headquarters of the *tālūks* (except of Uppinangadi, which is at PUTTŪR) are at the places from which they are respectively named. The headman of the Amindivis lives on the Amini island. Statistics of these areas, according to the Census of 1901, are shown in the table on the next page.

Much of South Kanara is hill and forest; and the density of the population is accordingly little above the average for the Presidency as a whole, fertile and free from famine though the District is. In the Uppinangadi *tālūk*, which lies close under the Ghāts, there are only 147 persons to the square mile. This is, however, on the main road to Mysore and Coorg, and the opportunities for trade thus afforded have caused the population here to increase faster than in the District as a whole.

The population of South Kanara in 1871 was 918,362; in 1881,

959,514; in 1891, 1,056,081; and in 1901, 1,134,713. It will be seen that the growth, though steady, is not remarkable. In the decade ending 1901 the rate of increase was about equal to the average for the Presidency, and during the last thirty years it has amounted to 24 per cent. There is considerable temporary emigration of labourers every year to the coffee estates of Coorg and Mysore, the total loss to the District in 1901 on the movement between it and these two arcas being 14,000 and 40,000 persons respectively. On the other hand, South Kanara obtains very few immigrants from elsewhere. In 1901 less than 2 persons in every 100 found within it had been born outside. As in the case of Malabar, this is largely due to its geographical isolation, and to the fact that the ways and customs of its people and its agricultural tenures differ much from those of neighbouring areas. The people are fonder of living in their own separate homesteads than in streets, and the District consequently has a smaller urban population than any other except Kurnool and the Nilgiris, and includes only two towns. These are the municipality of MANGALORE (population, 44,108), the District head-quarters, and the town of UDIP1 (8,041). Both are growing places. There are few villages of the kind usual on the east coast, the people living in scattered habitations.

<i>Tāluk.</i>	Area in square miles.	Number of		Population.	Population per square mile	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Coondapoor .	619	...	103	131,858	213	+ 0.2	7,748
Udipi .	719	1	157	251,831	350	+ 3.9	15,496
Mangalore .	679	1	243	334,294	492	+ 10.5	22,023
Amindivi Islands	3	...	4	3,608	1,203	- 3.1	38
Uppinangadi .	1,239	...	182	181,842	147	+ 9.9	7,818
Kāsaragod .	762	...	114	231,280	304	+ 10.0	13,067
District total	4,021	2	803	1,134,713	282	+ 7.4	66,190

Of the total population in 1901 Hindus numbered 914,163, or 81 per cent.; Musalmāns, 126,853, or 11 per cent.; Christians, 84,103, or 7 per cent.; and Jains, 9,582, or 1 per cent. Musalmāns are proportionately more numerous than in any Districts except Malabar, Madras City, and Kurnool; and most of them are Māppillas, who are described in the article on MALABAR. Excluding the exceptional cases of Madras City and the Nilgiris, Christians form a higher percentage of the people than in any District except Tinnevely. They have increased at the rate of 45 per cent. during the last twenty years. Jains are more numerous than in any other District of Madras.

South Kanara is a polyglot District. Tulu, Malayālam, Kanarese, and Konkani are all largely spoken, being the vernaculars respectively

of 44, 19, 19, and 13 per cent. of the population. Tulu is the language of the centre of the District, and is used more than any other tongue in the Mangalore, Udipi, and Uppinangadi *tālūks*; but in Mangalore a fifth of the people speak Konkani, a dialect of Marāthi, and in Udipi nearly a fourth speak Kanarese. In the Amindivi Islands and in Kāsaragod, which latter adjoins Malabar, Malayālam is the prevailing vernacular. Most of those who are literate are literate in Kanarese. It is the official language of the District, and its rival, Tulu, has no written character, though it has occasionally been printed in Kanarese type.

The District contains proportionately more Brāhmins than any other in Madras, the caste numbering 110,000, or 12 per cent. of the Hindu population. The Hindus are made up of many elements, and the castes are in need of more careful study than they have yet received. They include 16,000 Telugus (9,000 of whom are Devānga or Sāle weavers); 82,000 members of Malayālam castes (most of whom are found in the Kāsaragod *tālūk*); 140,000 people of Marāthi or Konkani-speaking communities; and 672,000 who talk Kanarese or Tulu. The three largest castes in the District are the Billavas (143,000), the Bants (118,000), and the Holeyas (118,000). The first two of these hardly occur elsewhere. They are respectively the toddy-drawers and the landholders of the community. The Holeyas are nearly all agricultural labourers by occupation.

Except the three Agnecics in the north of the Presidency and South Arcot, South Kanara is more exclusively agricultural than any other District. As many as three-fourths of its people live by the land. Toddy-drawers are also proportionately more numerous than usual, though it must be remembered that many toddy-drawers by caste are agriculturists or field-labourers by occupation, while weavers and leather-workers form a smaller percentage of the people than is normally the case.

Out of the 84,103 Christians in the District in 1901, 83,779 were natives, more than 76,000 being Roman Catholics. Tradition avers that St. Thomas the Apostle visited the west coast in the first century. The present Roman Catholic community dates from the conquest of Mangalore by the Portuguese in 1526. Refugees from the Goanese territory driven out by Marāthā incursions, and settlers encouraged by the Bednūr kings, swelled the results of local conversion, so that by Tipū's time the native Christian community was estimated at 80,000 souls. But after the siege of Mangalore in 1784 Tipū deported great numbers of them, estimated at from 30,000 to 60,000, to Seringapatam, seized their property, and destroyed their churches. Many of them perished on the road and others were forcibly converted. On the fall of Seringapatam the survivors returned, and the community

was soon again in a prosperous condition. The jurisdiction of Goa continued until 1837, when part of the community placed themselves under the Carmelite Vicar Apostolic of Verapoli in Travancore. After further vicissitudes the Jesuits took the place of the Carmelites in 1878. Mangalore is now the seat of a Roman Catholic bishopric.

The only Protestant mission is the German Evangelical Mission of Basel, established at Mangalore in 1834. Its converts now number 5,913, mainly drawn from the poorest classes of the people, who find employment in the various industrial enterprises of the mission.

The agricultural methods of South Kanara are conditioned by its climate and geological peculiarities. As already mentioned, the District is a laterite plateau on a granite bed, bounded by the Ghâts, and worn and furrowed into countless valleys

Agriculture.

by the action of the monsoons. Much of the level plateau above the valleys produces nothing but thatching-grass or stunted scrub: but the numerous hollows are the scene of rich and varied cultivation, and the slopes above the fields are well wooded save where denuded to supply the fuel markets of Mangalore and other large towns.

The soil is as a rule a laterite loam, which is especially rich in the lower stretches of the valleys, where the best rice land is found. Large stretches of level ground occur along the coast, where the soil is generally of a sandy character but contains much fertilizing alluvial matter. To the north of the Chandragiri river this land grows excellent rice crops and bears a very heavy rent. South of that stream the soil is thinner and suited only to the commoner kinds of rice; but tobacco and vegetables are grown in considerable quantities, especially by the Māppillas.

Every valley has one or more water channels running through its centre or down either side. The best rice-fields lie as a rule on a level with these channels, which feed them during the whole of the first-crop season by small openings in their embankments that can be shut or opened as needed. After the first crop of rice has been harvested, dams are thrown across these channels at intervals; and by this means the level of the water is maintained, and a second, and even a third, crop of rice can be grown by direct flow from the channel, water being let into the plots as required. Very often a permanent dam is maintained above the cultivation, to divert part of the water down the side channels. In the land immediately above these side channels a second crop of rice is grown by bailing either with *picottals*, or, when the level admits, with hand-scoops (*kaidambe*) suspended from a cross-bar, or with a basket swung with ropes by two men. These lands are locally termed *majal*. Still higher up the slopes of the valley are other rice-fields, known as *bettu*, cut laboriously in terraces out of the hill-sides. These give only one crop of rice and, except where fed by some small jungle

stream, are entirely dependent on the rainfall; consequently their cultivation is somewhat precarious. The areca gardens are mostly situated in the sheltered nooks of the valleys in the more hilly parts of the District and in the recesses of the lower spurs and offshoots of the Ghāts, where the two essentials of shade and a perennial water-supply occur in combination. The finest coco-nut gardens are found in the sandy level stretches adjoining the coast, especially along the fringes of the numerous backwaters.

A considerable quantity of black gram, horse-gram, and green gram is grown on the level land near the coast as a second crop, and on *majal* lands elsewhere if sufficient moisture is available. Sugar-cane is grown here and there beside the backwaters. Pepper has never recovered from the measures taken by Tipū to suppress its cultivation. In the south of the Kāsaragod *tāluk*, *kumri*, or shifting cultivation, is still carried on in the jungles.

The District is essentially *ryotwāri*, such *ināms* as exist being merely assignments of land revenue. Statistics of the various *tālukes* for 1903-4 are appended, areas being in square miles :—

<i>Tāluk.</i>	Area shown in accounts.	Forests.	Cultivable waste.	Cultivated.
Coondapoor . . .	619	241	35	122
Udipi . . . . .	719	159	60	134
Mangalore . . . .	679	60	122	195
Uppinangadi . . .	1,239	547	91	162
Kāsaragod . . . .	762	63	61	377
Total	4,018	1,070	369	990

More than a fourth of the District consists of forest, nearly one-half is hilly and rocky land not available for cultivation, and the area actually cropped is less than a fifth of the total. Rice is by far the most important staple, the area under it (counting twice over that cropped twice) being 760 square miles. The garden area, 82 square miles, consists almost entirely of coco-nut and areca-nut plantations. These three crops practically monopolize the cultivation.

For agricultural purposes the ryots divide the year into three seasons, to correspond with the times of the three rice crops. These are *Kārtika* or *Yenel* (May–October), *Suggi* (October–January), and *Kolake* (January–April). It is doubtful if any District in the Presidency shows such a round of orderly and careful cultivation, and the increased out-turn from any theoretical improvements that might be made would probably be more than counterbalanced by the enhanced cost of cultivation. The choice and rotation of crops, the properties of various soils, the selection of seed and of seed-beds, the number of ploughings, the amount of manure, the distribution of water, the

regulation of all these, and the countless other details of high farming, if based on no book knowledge, have been minutely adapted by centuries of experience and tradition to every variety of holding.

In the jungles which almost everywhere adjoin the cultivation the ryot finds an unfailing supply of manure for his fields, of timber for his agricultural implements, which he fashions at little expense to himself, and of fuel for domestic use. Consequently he has availed himself but little of the Land Improvements Loans Act. Under the name of *kumaki*, holders of *kadim wargs*, or holdings formed before 1866, enjoy these privileges to the exclusion of others within 100 yards of the cultivation. No figures are available to show the extension of tillage. The absence of a survey, the connivance of the village and subordinate revenue officials, and the nature of the country have made encroachments particularly easy; and land has been formally applied for only where the prior right to it has been disputed, or to serve as a nucleus for future encroachment. Cultivation has increased steadily everywhere except immediately under the Ghâts, where the miseries and depopulation caused by the disturbances of the eighteenth century threw out of cultivation large tracts which have never recovered, owing to the prevalence of malaria and the demand for labour elsewhere.

The chief drawback to agriculture in South Kanara is the want of a good indigenous breed of cattle. All the best draught and plough cattle have to be imported from Mysore, and even where well tended they are apt to deteriorate. The ordinary village cattle, owing to exposure to the heavy rains, indiscriminate breeding, bad housing, and a régime of six months' plenty and six months' want, are miserably undersized and weakly. The climate is equally unfavourable to sheep and horses, the number of which is small and kept up only by importation. A fair is held annually at Subrahmanya, to which about 50,000 head of cattle are brought from Mysore to meet local requirements.

The heavy rainfall and the rapid nature of the rivers do not admit of large irrigation reservoirs or permanent dams being formed, and as a result there are no Government irrigation works in the District. But the ryots have themselves most skilfully utilized the springs and streams by countless channels, feeders, and temporary dams. Along the coast, cultivation is largely assisted by shallow ponds scooped at little expense out of the sandy soil, and farther inland reservoirs of a more substantial nature are sometimes constructed at the valley heads. Many areca gardens are so supplied.

South Kanara is essentially a forest District. With the exception of the bare laterite plateaux and downs of the Kāsaragod and Mangalore *tālúks*, and the spots where the hills near the coast have been stripped of their growth for timber, fuel, and manure, the country is everywhere richly wooded. The whole

Forests.

line of the Ghâts with their spurs and offshoots presents an almost unbroken stretch of virgin forest, which finds its richest and most luxuriant development in the recesses of the Uppinangadi *tāluk*, where the most important and largest Reserves are found. The total forest area in the District is 662 square miles, and 408 square miles of 'reserved' land are also controlled by the Forest department. In the early years of British administration the claims of Government to the forests and their prospective importance were alike overlooked; but the rights of the Crown began to be asserted from the year 1839 onwards, and during the last thirty years Reserves have been selected and a system of conservation introduced.

The destructive system of shifting cultivation, locally known as *kumri*, has been prohibited since 1860, except in a few small tracts where it is strictly regulated. Such regulation is a matter of the greatest importance to a District with an annual rainfall averaging over 140 inches, the seasonable distribution of which depends largely on the proper protection of its catchment area.

The most valuable timber trees are teak, poonspar (*Calophyllum elatum*), black-wood (*Dalbergia latifolia*), jaek (*Artocarpus integrifolia*) and wild jack (*A. hirsuta*), *ventek* (*Lagerstroemia microcarpa*), *kirālbhog* (*Hopea parviflora*), *banapu* (*Terminalia tomentosa*), and *marva* (*T. paniculata*). But development must still be said to be in its infancy. In fact, the chief revenue is at present derived from items of minor produce, such as eateehu, grazing fees, &c. The main obstacle is the want of good communications; but once this is overcome, whether by a system of light railways or otherwise, the South Kanara forests should be of the greatest value.

A fine clay excellently adapted for pottery is found in several localities, especially along the banks of the Netrāyati, which supplies material for the Mangalore tile-works mentioned below. Gold and garnets are known to occur in one or two places, but the mineral resources of the District are as yet practically unexplored. The ordinary laterite rock, which is easily cut and hardens on exposure, forms the common building material.

The only large manufactures in South Kanara are the results of European enterprise. Tile-making was introduced by the Basel

Trade and communications. Mission, and this body has now two factories at Mangalore and another at Malpe near Udipi. At Mangalore one other European firm and nine native merchants are engaged in the industry, and elsewhere in the District are two more native factories. The industry employs altogether about 1,000 hands. The Basel Mission has also a large weaving establishment at Mangalore, and some of its employes have started small concerns elsewhere; but otherwise the weaving of the

District is of the ordinary kind. The same may be said with reference to the work of the goldsmiths, blacksmiths, and other artisans. Four European and three native firms are engaged in coffee-curing. In 1903-4 coffee from above the Ghāts to the value of 41 lakhs was exported. Coir yarn is manufactured in considerable quantities in the Amindivi Islands, where it forms a Government monopoly, and along the coast. On the coast, too, a considerable industry exists in fish-curing, which is done with duty-free salt in fourteen Government curing-yards. Most of the product is exported to Colombo, but large quantities are also sent inland. Sandal oil is distilled in the Udipi *tāluk* from sandal-wood brought down from Mysore.

The principal articles of export are coffee, tiles, coco-nut kernels (copra), rice, salted fish, spices, and wood. The tiles are exported to Bombay and to ports in the Presidency. The coffee is brought from Mysore and Coorg to be cured, and is exported chiefly to the United Kingdom and France. The coco-nut kernels go chiefly to Bombay, rice to Malabar and Goa, and salted fish to Colombo. Large quantities of areca-nuts are shipped to Bombay and Kāthiāwār. The wood exported is chiefly sandal brought from Mysore and Coorg. The chief imports are cotton piece-goods, grain, liquor, oil, copra, pulses, spices, sugar, salt, and salted fish, largely to meet local needs, but partly for re-export to Mysore and Coorg. The bulk of the trade is carried on at MANGALORE (the commerce of which is referred to in the separate article upon the place); and Malpe, Hangārkatta, and Gangoli are the most important of the outports. The most prominent by far of the mercantile castes are the Māppillas, who are followed by Telugu traders, such as the Baliās and the Chettis. Konkani Brāhmins, native Christians, and Rājāpuris also take a share. There are twenty weekly markets in the District under the control of the local boards.

The District had recently no railways; but the Azhikal-Mangalore extension of the Madras Railway, opened throughout in 1907, now affords communication with Malabar and the rest of the Presidency. Its construction is estimated to have cost 109 lakhs for a length of 78 miles. A line from Arsikere on the Southern Mahratta Railway to Mangalore has also been projected and surveyed.

The total length of metalled roads is 148 miles and of unmetalled roads 833 miles, all of which are maintained from Local funds. Avenues of trees have been planted along 467 miles. The main lines are the coast road from Kavoy to Shirūr; the roads leading to Mercār through the Sampaji *ghāt* from Kāsaragod and Mangalore; and those from Mangalore through the Chārmādi *ghāt* to Mudugere *tāluk*, and through Kārkala and the Agumbe *ghāt* to the Koppa *tāluk* in Mysore. Lines running through the Kollūr, Hosangadi, Shiādi, and Bisale



*ghāts* also afford access to Mysore, and the main routes are fed by numerous cross-roads. The tidal reaches of the rivers and the numerous backwaters furnish a cheap means of internal communication along the coast. In the monsoon communication by sea is entirely closed ; but during the fair season, from the middle of September to the middle of May, steamers of the Bombay Steam Navigation Company call twice weekly at Mangalore and other ports in the District. Mangalore is also a port of call for steamers of the British India Company and other lines. Large numbers of coasting craft carry on a brisk trade.

Owing to the abundant monsoons the District always produces more grain than is sufficient for its requirements. It is practically exempt from famine, and no relief has ever been needed except in the year 1812.

For administrative purposes South Kanara is divided into three subdivisions. Coondapoor, comprising the Coondapoor and Udupi

*tālūks*, is usually in charge of a Covenanted Civilian. Administration. Mangalore, corresponding to the *tālūk* of the same name (but including also the Amindivi Islands), and Puttūr, comprising the Uppinangadi and Kāsaragod *tālūks*, are under Deputy-Collectors recruited in India. A *tahsildār* and a stationary sub-magistrate are posted at the head-quarters of each *tālūk*, and deputy-*tahsildārs* at Kārkala, Bantvāl, Beltangadi, and Hosdrug, besides a sub-magistrate for Mangalore town.

Civil justice is administered by a District Judge and a Subordinate Judge at Mangalore, and by District Munsifs at Mangalore, Kāsaragod, Udupi, Coondapoor, Puttūr, and Kārkala. The Court of Session hears the more important criminal cases, but serious crime is not more than usually common, and there are no professional criminal tribes in the District. Offences under the Abkārī, Salt, and Forest Acts are numerous ; and civil disputes are frequently made the ground of criminal charges, especially in connexion with land and inheritance, the majority of the Hindu castes in the District being governed by the Aliya Santāna law of inheritance, under which a man's heirs are not his own but his sister's sons.

Little is known of the early revenue history of the District. Tradition gives one-sixth of the gross produce, estimated at first in unhusked and latterly in husked rice, as the share demanded by the government prior to the ascendancy of Vijayanagar. About 1336, in the time of Harihara, the first of the kings of that line, the land revenue system was revised. One-half of the gross produce was apportioned to the cultivator, one-quarter to the landlord, one-sixth to the government, and one-twelfth to the gods and to Brāhmans. This arrangement thinly disguised an addition of 50 per cent. to the land revenue ; and the assumed share of the gods and Brāhmans, being collected by the

government, was entirely at its disposal. In 1618 the Ikkeri Rājās of Bednūr imposed an additional assessment of 50 per cent. on all the District except the Mangalore *hobli*, and at a later date imposed a tax on fruit trees. These additions were permanently added to the standard revenue. Other additions were made from time to time, amounting in 1762, when Haidar conquered Kanara, to a further 25 per cent. of the standard revenue, but still not sufficient to affect seriously the prosperity of the District. Haidar cancelled the deductions previously allowed on waste lands and imposed other additions, so that at his death the extras exceeded the standard revenue. The further exactions and oppressions of Tipū were such that much land went out of cultivation, collections showed deficiencies ranging from 10 to 60 per cent., and the District was so impoverished that little land had any saleable value.

Major (afterwards Sir Thomas) Munro, the first Collector of the District, setting aside all merely nominal imposts and assessments on waste lands, imposed on Kanara and Sonda (the present Districts of North and South Kanara) a new settlement in 1799-1800. Some slight reductions were made in the following year. It worked smoothly for some time; then difficulty in the collections and signs of deterioration owing to over-assessment induced the Board of Revenue to order a revision, based on the average collections from each estate since the country came under the British Government. This assessment, introduced in 1819-20, was till recently in force in South Kanara, with the exception of a portion of the Uppinangadi *tāluk* which was subsequently taken over from Coorg. Continued difficulty in realizing the demand, owing to low prices and riotous assemblages of the cultivators, who refused to pay their assessment, led to a Member of the Board of Revenue being deputed in 1831 to inquire into the state of the District. He reported that the disturbances were due to official intrigues, that the assessment was on the whole moderate, though low prices had caused some distress, and that where over-assessment existed it was due entirely to the unequal incidence of the settlement, aggravated by the frauds of the village accountants, who had complete control over the public records. In accordance with his views, some relief was granted in the settlement for 1833-4 to those estates which were over-assessed. The Board did not, however, regard these measures as satisfactory. Further correspondence confirmed the view that any attempt to base a redistribution of the assessment on the accounts then available was doomed to failure, owing to their fallacious nature. The Board therefore expressed the opinion that the only remedy was a settlement based on a correct survey. This proposal involved a consideration of the question whether any pledge had been given for the fixity of the settlement of 1819-20. After further correspondence

between the Collectors, the Board, and the Government, the question was dropped in 1851, the improvement in prices having meanwhile relieved the pressure of assessment on particular estates.

In 1880 the matter was again raised by the Government of India, in connexion with the general revision of settlements in the Presidency; and it was finally determined that the Government was in no way pledged to maintain the assessment unaltered, and that the survey and revision of settlement should be extended to Kanara in due course. A survey was begun in 1889 and settlement operations in October, 1894. A scheme was sanctioned for all the *tālūks* and has now been brought into operation. Under this the average assessment on 'dry' land is R. 0-9-7 per acre (maximum Rs. 2, minimum 2 annas); on 'wet' land Rs. 4-7-11 (maximum Rs. 10, including charge for second crop; minimum 12 annas); and on garden land Rs. 4-13-7 (maximum Rs. 8, minimum Rs. 2). The proposals anticipate an ultimate increase in the assessment of the District of Rs. 9,22,000, or 65 per cent., over the former revenue.

The revenue from land and the total revenue in recent years are given below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . . .	13,38	14,69	15,26	17,05
Total revenue . . .	17,90	21,63	25,41	27,76

Outside the municipality of Mangalore, local affairs are managed by the District board and the three *tālūk* boards of Coondapoor, Mangalore, and Puttūr, the areas in charge of which correspond with the subdivisions of the same names. Their total expenditure in 1903-4 was Rs. 2,82,000, of which Rs. 1,57,000 was laid out on roads and buildings. The chief source of income is, as usual, the land cess. South Kanara contains none of the Unions which on the east coast control the affairs of many of the smaller towns.

The police are in charge of a District Superintendent, whose headquarters are at Mangalore. The force numbers 10 inspectors and 558 constables, and there are 50 police stations. Village police do not exist.

There is a District jail at Mangalore, and 8 subsidiary jails at the head-quarters of the *tahsildārs* and their deputies have accommodation for 85 males and 35 females.

At the Census of 1901 South Kanara stood eleventh among the Districts of the Presidency in the literacy of its population, 5.8 per cent. (11.1 males and 0.9 females) being able to read and write. Education is most advanced in the Mangalore *tālūk*, and most backward in the hilly inland *tālūk* of Uppinangadi. In 1880-1 the number

of pupils of both sexes under instruction in the District numbered 6,178; in 1890-1, 18,688; in 1900-1, 24,311; and in 1903-4, 27,584. On March 31, 1904, the number of educational institutions of all kinds was 658, of which 502 were classed as public and 156 as private. The public institutions included 474 primary, 23 secondary, and 3 special schools, and 2 colleges. The girls in all of these numbered 4,107, besides 1,566 under instruction in elementary private schools. Six of the public institutions were managed by the Educational department, 85 by local boards, and 7 by the Mangalore municipality, while 278 were aided from public funds, and 126 were unaided but conformed to the rules of the department. Of the male population of school-going age in 1903-4, 21 per cent. were in the primary stage of instruction, and of the female population of the same age 4 per cent. Among Musalmāns, the corresponding percentages were 30 and 6 respectively. Education, especially that of girls, is most advanced in the Christian community. Two schools provide for the education of Panchamas or depressed castes, and are attended by 37 pupils. The two Arts colleges are the St. Aloysius College, a first-grade aided institution, and the second-grade Government College, both at Mangalore. The former was established in 1880 by the Jesuit Fathers. The total expenditure on education in 1903-4 was Rs. 2,22,000, of which Rs. 77,000, or 35 per cent., was derived from fees; and 53 per cent. of the total was devoted to primary education.

The District possesses 8 hospitals and 11 dispensaries, with accommodation for 75 in-patients. In 1903 the number of cases treated was 135,000, including 1,600 in-patients, and 3,200 operations were performed. The expenditure was Rs. 38,000, which was mostly met from Local and municipal funds.

In 1903-4 the number of persons successfully vaccinated was 28,000, or 23 per 1,000 of the population. Vaccination is compulsory only in the Mangalore municipality.

[J. Sturrock and H. A. Stuart, *District Manual* (1894).]

**Kanārak.**—Temple in Purī District, Bengal. See KONĀRAK.

**Kānaud Town.**—Head-quarters of the Mohindargarh *nizāmat* and *taḥsīl*, Patīāla State, Punjab, situated in 28° 16' N. and 76° 13' E., 24 miles south of Dāri. Population (1901), 9,984. Kānaud was founded by Malik Maḥdūd Khān, a servant of Bābar, and first peopled, it is said, by Brāhmans of the Kanaudia *sāsan* or group, from whom it takes its name. It remained a *pargana* of the *sarkār* of Nārnaul under the Mughal emperors, and about the beginning of the eighteenth century was conquered by the Thākūr of Jaipur, who was in turn expelled by Nawāb Najaf Kuli Khān, the great minister of Shāh Alam. On his death his widow maintained her independence in the fortress, but in 1792 Sindhia's general, De Boigne, sent a force against it under

Perron. Ismail Beg persuaded its mistress to resist, and marched to her relief; but she was killed in the battle which ensued under the walls of Kānaud, and Ismail Beg surrendered to Perron. Kānaud then became the principal stronghold of Appa Khande Rao, Sindhia's feudatory, who held the Rewāri territory, and eventually became a possession of the British, by whom it was granted to the Nawāb of Jhajjar. By the *sanad* of January 4, 1861, the British Government granted *parganas* Kānaud and Kuddhūāna to the Mahārājā of Patiāla, with all rights pertaining thereto, in lieu of 19.4 lakhs. The town has an Anglo-vernacular middle school, a dispensary, and a police station. The fort of Kānaud, known as Mohindargarh, contains the headquarters offices of the Mohindargarh *nizāmat* and *tahsīl*.

**Kanauj Tahsīl** (*Kannauj*).—South-eastern *tahsīl* of Farrukhābād District, United Provinces, conterminous with the *pargana* of the same name, lying along the Ganges, between 26° 56' and 27° 12' N. and 79° 43' and 80° 1' E., with an area of 181 square miles. Population decreased from 117,229 in 1891 to 114,215 in 1901. There are 206 villages and one town, KANAUJ (population, 18,552). The demand for land revenue in 1903-4 was Rs. 1,95,000, and for cesses Rs. 31,000. The density of population, 631 persons per square mile, is above the District average. The *tahsīl* consists of two parts: the uplands or *bāngar*, and the lowlands near the Ganges, or *kachohā*, the former covering the larger area. The Kālī Nadī (East) crosses the *tahsīl* and joins the Ganges. In 1903-4 the area under cultivation was 124 square miles, of which 43 were irrigated. Irrigation is supplied almost entirely from wells, and the tract is liable to suffer in dry seasons. This was the only *tahsīl* in the District which lost in population between 1891 and 1901.

**Kanauj Town** (*Kannauj*).—Ancient city in Farrukhābād District, United Provinces, situated in 27° 3' N. and 79° 56' E., 2 miles from the grand trunk road and the Cawnpore-Achhnerā Railway, and close to the Kālī Nadī (East). The Ganges once flowed below its walls, but is now some miles away. Population (1901), 18,552. The town finds no mention in the Mahābhārata, but the legend of its foundation is given in the Rāmāyana. Kusīnābha, the founder, had a hundred daughters, all but the youngest of whom scorned the hermit, Vāyu. In revenge he cursed them, and their backs became humped, whence the city was called Kānya-kubja, or 'the crooked maiden.' Early in the Christian era Ptolemy refers to Kanauj as *Kanogiza*. The town was included in the Gupta dominions in the fifth century; and when the Gupta empire fell to pieces it became the capital of the Maukharis, one of the petty dynasties which arose in its place. In the sixth century it suffered from war with the White Huns and their ally, the king of Mālwa; but early in the seventh century it was included in

the great empire of Harshavardhana in Northern India. The Chinese pilgrim, Hiuen Tsiang, who visited this monarch and travelled with him from Allahābād to Kanauj, describes the magnificence of his court. Harshavardhana's death was the signal for anarchy, and the detailed history of the following years is unknown. In the latter half of the ninth century a dynasty of Raghuvansi kings reigned from Kanauj, which was also called Mahodayā, over an extensive dominion. One of these kings was defeated in 917 by the king of Gujarāt, but restored by the Chandel king of Mahobā. In 1019 Mahmūd of Ghazni plundered Kanauj, which now came into the power of the Rāthors, the most celebrated of whom was Gobind Chand (1115-55). Nearly 200 years later, in 1194, Muhammad Ghorī defeated Jai Chand, the last of the Rāthor kings, and the great kingdom of Kanauj came to an end. Under the Muhammadans Kanauj became the seat of a governor, but lost its old importance. In the fifteenth century it was included for some years in the Sharki kingdom of Jaunpur : and when Mahmūd, son of Fīroz Tughlak, lost his hold on Delhi, he resided here for a time. It was close to Kanauj, though across the Ganges in Hardoi District, that Humāyūn was defeated by Sher Shāh. Under Akbar, when order had once been restored, Kanauj entered on a long period of peace, and it is recorded in the *Ain-i-Akbari* as the head-quarters of a *sarkār*. During the eighteenth century it belonged sometimes to the Nawābs of Farrukhābād, again to the Nawābs of Oudh, and at times to the Marāthās. The town or kingdom of Kanauj has given its name to an important division of Brāhmans, and to many subdivisions of lower castes. Of the Hindu buildings which must have graced the place, nothing remains intact. The fine Jāma Masjid, built in 1406 by Ibrāhīm Shāh of Jaunpur, was constructed from Hindu temples, and the site is still known to Hindus as *Sitā kī rasoi*, or 'Sitā's kitchen.' There are many tombs and shrines in the neighbourhood, the most notable being those of Makhdūm Jahāniyā south-east of the town, and of Makhdūm Akhai Jamshīd 3 miles away, both dating from the fifteenth century. The most conspicuous buildings are, however, the tombs of Bālā Pīr and his son, Shaikh Mahdī, religious teachers who flourished under Shāh Jahān and Aurangzeb. The neighbourhood for miles along the river is studded with ruins, which have not been explored. The town lies on the edge of the old high bank of the Ganges, and, but for the high mounds and buildings described above, is not distinguishable from many places of similar size. The houses are fairly well built but small, and the most conspicuous modern building is a fine *sarai* recently completed. The dispensary, *tahsilī*, and *munsifi* are at Sarai Mīrān, 2 miles south of Kanauj. The town is administered under Act XX of 1856, with an income of about Rs. 4,000. It is famous for its scent distilleries, where rose-water, otto

of roses, and other perfumes are produced, which have a great reputation. Calico-printing is also carried on, but is not so important an industry here as in Farrukhābād city. There was formerly a small manufacture of country paper, and a cotton gin has been worked at intervals in the last few years. The town school has 113 pupils and two primary schools 96. There is also a flourishing aided school, housed in a fine building.

**Kanaung.**—Northern township of Henzada District, Lower Burma, lying between  $17^{\circ} 54'$  and  $18^{\circ} 19'$  N. and  $94^{\circ} 48'$  and  $95^{\circ} 31'$  E., with an area of 615 square miles. The population increased from 79,499 in 1891 to 92,365 in 1901, the density being 150 persons per square mile. The township extends from the Arakan Yoma in the west to the Irrawaddy, widening as it approaches the river. About one-third is uncultivable, being covered by the spurs of the Yoma. The lands in the western part are protected by embankments and fertile. The population consists almost entirely of Burmans, Karens, and Chins, in the proportions of 92, 6, and  $1\frac{1}{2}$  per 100. There are 428 villages and one town, MYANAUNG (population, 6,351). Kanaung (891) is the head-quarters. The area cultivated in 1903-4 was 149 square miles, paying Rs. 2,25,000 land revenue.

**Kanāwār.**—The upper or north-eastern subdivision of Bashahr State, Punjab, consisting in great part of the valley of the Upper Sutlej. It lies between  $31^{\circ} 7'$  and  $32^{\circ} 5'$  N. and  $77^{\circ} 48'$  and  $79^{\circ} 4'$  E. It is bounded on the north by Spiti; on the east by Chinese territory; on the south by Bashahr proper and Tehrī; and on the west by the Kochi subdivision of Bashahr. The estimated area is 1,730 square miles, and the population in 1901 was 17,741.

Kanāwār is a rugged country, 50 miles in length by 40 in breadth, through whose ridges winds the deeply cleft valley of the Sutlej. The precipitous banks of the main river afford little room for cultivation, but the valleys of its tributaries are assiduously tilled by the mountaineers. Until about forty-five years ago, grapes yielded an abundant vintage, being manufactured into raisin wine and strong spirit. Vine disease subsequently reduced the vintage to a quarter of what it once was, but has recently subsided. The population consists of a mixed Tibetan and Hindu race, the Mongolian element preponderating in the north, while the southern region is inhabited by persons of Aryan type. Alone among the neighbouring hill tribes, the Kanāwāris successfully resisted the Gurkha invasion, and so completely baffled the enemy by breaking down bridges, that the Gurkhas entered into a convention by which, in return for a tribute of Rs. 11,250, they agreed to leave the valley unmolested. Polyandry exists in its fullest form throughout Kanāwār. Religion, broadly speaking, follows race. The northern villages profess Buddhism of the Tibetan model; in the south Hin-

duism prevails, while the middle region shades off gradually from one faith into the other. The language varies, like the religion, from Tibetan in the north to neo-Sanskritic dialects on the Indian side. The chief villages in the valley are Sangnam and Kanum.

**Kanbalu Subdivision.**—Subdivision of Shwebo District, Upper Burma, containing the KANBALU and KYUNHLA townships.

**Kanbalu Township.**—North-eastern township of Shwebo District, Upper Burma, lying between the Mu and the Irrawaddy rivers, between  $22^{\circ} 51'$  and  $23^{\circ} 44'$  N. and  $95^{\circ} 22'$  and  $96^{\circ} 1'$  E., with an area of 1,636 square miles. The country is dry and flat, and only the south-western corner is at all thickly populated. The population was 31,872 in 1891, and 44,783 in 1901, distributed in 259 villages, Kanbalu (population, 1,003), on the railway, being the head-quarters. The area cultivated in 1903-4 was 132 square miles, and the land revenue and *thathameda* amounted to Rs. 64,300.

**Kānchenjanga.**—Mountain in Sikkim State, Bengal. See KINCHINJUNGA.

**Kānchivaram.**—*Tāluk* and town in Chingleput District, Madras. See CONJEEVERAM.

**Kānchrāpāra.**—Village in the Barrackpore subdivision, District of the Twenty-four Parganas, Bengal, situated in  $22^{\circ} 57'$  N. and  $88^{\circ} 26'$  E. Population (1901), 1,545. Kānchrāpāra is an important station on the Eastern Bengal State Railway, and the railway workshops are situated here. It lies within the HĀLISAHAR municipality.

**Kandahār Province.**—Province of Afghānistān, bounded on the north by the Taimani country in the Herāt province, and by the Hazārajāt and Ghazni districts of Kābul; on the east and south by Baluchistān; and on the west by Farrah. Within the administrative charge of the *naib-ul-hukumā* (governor) of Kandahār are comprised the division of Chakansūr, and the minor divisions or districts of Kalāt-i-Ghilzai, Mākūr, Pusht-i-Rūd, Zamindawar, and Girishk.

The province is divided into two well-marked portions, differing essentially from each other in character, by a line drawn from Kandahār to Farrah. North of this line, and also to the north-east, the country is hilly, and gradually becomes more mountainous northwards. The general elevation of portions of Pusht-i-Rūd and Zamindawar is about 4,000 feet, while in the Bhagni tract of Pusht-i-Rūd there are mountains of 10,000 feet in altitude. In the north-east Kalāt-i-Ghilzai is 5,543 feet above sea-level, and in its neighbourhood are peaks of not less than 9,500 feet. South of the dividing line above mentioned, the elevation is at first between 2,000 and 2,500 feet, but it rapidly decreases. The country watered by the lower courses of the Harūt, Farrah, and Helmand is open, forming the only plains of Afghānistān proper. To the south of Kandahār city is the desert of Registān: in



the south-west lies the great Afghān-Seistān desert. The province is drained by the Kadenai, Tarnak, Arghastān, Arghandāb, Helmand, Harūt, and Farrah Rūd rivers. Rising in the mountains north of the province, the Helmand with its tributaries eventually loses itself in the Seistān Hāmūn.

The name of the province seems to connect it with the Indian people known to the Greeks as *Gandarii*, but the present inhabitants are almost entirely Durrānis. The towns contain a considerable number of Pārsiwāns (people of Persian descent), while in Kandahār city there are about 5,000 Hindus. No reliable estimate of the total population can be given.

The climate varies considerably; that of the deserts is excessively trying, but with this exception it is on the whole good. In the mountainous regions the winters are severe, but elsewhere the cold is not great.

**Kandahār City.**—Capital of the Kandahār province of Afghānistān, situated in  $31^{\circ} 27'$  N. and  $65^{\circ} 43'$  E., 354 miles from Herāt by the shortest route, 313 from Kābul via Maidān, and about 62 miles from the British border at New Chaman; 3,462 feet above the sea. The city is situated between the Tarnak and Arghandāb rivers on a level plain, intersected by numerous canals, and highly cultivated and well populated to the south and west, but barren to the north, north-west, and north-east. It forms an irregular oblong, longest from north to south, with a circuit of over 3 miles. It is surrounded by a ditch 24 feet wide and 10 feet deep, and by a wall 27 feet in height. There are six gates, two each on the east and west, and one on the north and on the south. The four principal streets are about 40 yards wide, and are named after the gates to which they lead from the Chārsu, their point of intersection. Smaller and narrower streets branch from the main arteries towards the city walls. Kandahār is divided into four quarters, the various tribes which constitute the inhabitants occupying, to a great extent, separate portions. The different classes of merchants and shopkeepers also occupy separate streets, or portions of streets, in the various quarters. The houses are generally built of sun-dried bricks, and are flat-roofed, some with upper storeys. Those of the rich are enclosed by high walls, and many contain three or four courts, with gardens and fountains. The citadel is situated at the north of the city. South of it is an open space called the Topkhāna; west is another open space in which is situated the tomb of Ahmad Shāh Durrāni. This structure overtops all the surrounding buildings, and its lofty dome attracts the attention of the traveller approaching the city from a distance. There are more than 180 Sunni mosques in the city, of which the Khirka Mubārak, a place of sanctuary (*bast*), is the most celebrated. Notwithstanding the large number of Shiah inhabitants, there is no

Shiah mosque. A commodious caravanserai exists outside the eastern gate for the storage of wool and other goods going to India.

The total population of Kandahār city is estimated at 31,000, among whom Pārsiwāns predominate. There are about 1,600 shops, and a *ganj* where a large cattle, sheep, and grain market is held daily. The usual water-supply is derived, by numerous canals, from the Arghandāb, but an ample supply is also available from wells. The climate of Kandahār is not salubrious, probably owing to the want of sanitation and to the large graveyards on one side and the marshes on the other. The rainfall is small, and occurs during the winter and early spring. In the summer months the heat is intense. The temperature varies greatly between sunrise and mid-day, sometimes by as much as 40° or 50°.

Kandahār is famous for its fruits, which are as plentiful as they are good; apricots, peaches, pomegranates, grapes, figs, and melons are all excellent of their kind and, fresh or dry, are largely exported. A considerable amount of tobacco is also grown for export to India.

Kandahār is one of the principal trade centres in Afghānistān. There are no manufactures or industries of any importance peculiar to the city; but the long lines of bazars display goods from Great Britain, India, Russia, Persia, and Turkistān, embracing a trade area as large probably as that of any city in Asia. The customs and towns dues together amount to a sum equal to the land revenue of the entire province. The Hindus are the most numerous and the wealthiest merchants in Kandahār, carrying on a profitable trade with Bombay and Sind. They import British manufactures, e.g. silks, calicoes, muslins, chintzes, broadcloth, and hardware; and Indian produce, such as indigo, spices, and sugar. They export asafoetida, madder, wool, dried fruits, tobacco, silk, rosaries, &c. In 1903-4 the exports to India from Kandahār were valued at nearly 35 lakhs, and the imports at 33 lakhs.

From early times Kandahār must have been a town of much importance in Asia, as being the central point at which the roads from Herāt, Seistān, Ghor, Kābul, and India unite. The position did not escape the notice of Alexander the Great, and Kandahār (*Alexandria Arachoton*) is probably one of the cities that he founded or rebuilt. After being a portion of the Seleucid, Parthian, Sassanid, and Arab empires, Kandahār, on the break-up of the Khalifat, fell successively to the Persian Saffārids and Sāmānids, to the house of Ghazni, the Seljūks, the Ghorids, and the Shāhs of Khwārizm, and in 1222 it was captured by the Mongols under Chingiz Khān. From his descendants it passed for a time to the Kart dynasty of Herāt, an offshoot of the Ghorids, and in 1389 it was taken by Tīmūr Lang. Between 1468 and 1512 it was under local chiefs, but in the latter year it was recovered for

the Tīmūrids by Bābar, the founder of the Mughal empire. After his death Kandahār was a constant subject of contention between the Mughals and the Persian Safavids; and after being several times captured and recaptured by one or the other, it finally passed out of Mughal possession in 1648, the subsequent efforts of Shāh Jahān's sons, Aurangzeb and Dārā Shikoh, to recover it proving fruitless. In 1708 the Ghilzais of Kandahār threw off the Persian yoke, and a few years later defeated the Safavids in Persia itself. Persian rule was restored for a short time by Nādir Shāh, who destroyed the city in 1738 and built a new one. The old city is now known as Shahr-i-Kohna, and its ruins lie at the base of a bare rocky hill 3 miles to the west of the present town. Nādir Shāh's foundation was in turn destroyed by his Afghān successor, Ahmad Shāh, who founded the existing city in 1747. In 1834 Shāh Shujā, the dispossessed (Sadozai) king of Afghānistān, attempted to re-establish himself in Kandahār, but he was driven off by his Bārakzai rival, Dost Muhammad, who, after his victory, took the title of Amīr.

This was the last unaided attempt of the Sadozais to retake Kandahār. The next time Shāh Shujā appeared on the field it was with the support of the British Government. The Army of the Indus occupied Kandahār in April, 1839, and Shāh Shujā was crowned there in May. While the restored king with the main British army marched on Kābul, a force was left under General Nott to hold Kandahār. In 1842, after the revolt at Kābul and the massacre of Burnes and Macnaghten, an attack was made on the city by large bodies of Afghāns under Safdar Jang Sadozai, but it was beaten off with heavy loss, and a fresh attempt soon after was equally unsuccessful. In August, 1842, Nott marched to Kābul, and Safdar Jang then took possession of Kandahār, only to be driven out four months afterwards by Kohan Dil Khān, who had come from Persia. On the death of the latter in 1855 his son, Muhammad Sādik, held the city for a short time until Dost Muhammad took possession in November of the same year. Dost Muhammad appointed his son, Ghulām Haidar Khān, governor, and on his death in 1858 Sher Ali Khān succeeded him. On the latter becoming Amīr, he appointed his full brother, Muhammad Amīn Khān, to be governor. This chief rebelled and was killed in battle in 1865. Kandahār again fell into Sher Ali's hands; passed from his grasp to that of his half-brother and rival, Azīm Khān, in 1867; and again fell into the power of Sher Ali, through his son, Yakūb Khān, in 1868.

During the last Afghān War Kandahār was occupied by British troops in January, 1879; and in May, 1880, Sardār Sher Ali Khān was installed as Walī of the Kandahār province, which was to be independent of Kābul. In July, Sardār Muhammad Ayūb Khān, a younger

brother of Yakūb Khān, advancing from Herāt, inflicted a crushing defeat on a brigade of British troops at Maiwand and invested Kandahār. A relieving force under General Roberts left Kābul on August 8, arrived at Kandahār on the 31st, and on September 1 totally defeated Ayūb, whose camp, artillery, and baggage were captured, the Sardār escaping with a handful of followers. The victory immediately quieted the country, and the last of the British forces evacuated Southern Afghānistān in April, 1881. Sher Alī Khān had found himself too weak to maintain the position conferred on him, and had retired, at his own request, to India, where he ended his days as a British pensioner. Within three months of the British withdrawal, Ayūb Khān, who had been maintaining himself with spirit at Herāt, again took the field, and, after defeating Abdur Rahīmān's troops, occupied Kandahār. He was, however, utterly defeated by the Amīr in September, 1881, and fled towards Herāt; but that city had, meanwhile, been occupied by one of the Amīr's lieutenants, and Ayūb Khān had to seek refuge in Persia. He came to India in 1888, and has since resided there.

**Kandahār.**—Western *tāluk* of Nānder District, Hyderābād State, with an area of 680 square miles. The population in 1901, including *jāgīrs*, was 97,728, compared with 128,525 in 1891, the decrease being due to the famine of 1900. Kandahār contained till recently one town, MUKKHER (population, 6,148), the head-quarters; and 190 villages, of which 37 are *jāgīr*. The land revenue in 1901 was 2.5 lakhs. *Regar* forms its predominant soil. In 1905 the *tāluk* was enlarged by the addition of some villages from Osmānnagar.

**Kandh.**—Tribe in the Central Provinces and Madras. See KHOND.

**Kandhkot.**—*Tāluka* of the Upper Sind Frontier District, Sind, Bombay, lying between 27° 59' and 28° 27' N. and 68° 57' and 69° 22' E., with an area of 543 square miles. The population in 1901 was 48,723, compared with 30,369 in 1891. The density, 90 persons per square mile, approximates to the District average. The *tāluka* contains 82 villages, of which Kandhkot is the head-quarters. The land revenue and cesses in 1903-4 amounted to nearly 1.9 lakhs. The *tāluka* depends for irrigation upon the Begārī, Unhar Wah, and Desert Canals, the canals from the Kashmor Band, and upon river floods.

**Kāndhla.**—Town in the Budhāna *tahsil* of Muzaffarnagar District, United Provinces, situated in 29° 19' N. and 77° 16' E., near the Eastern Jumna Canal, 29 miles south-west of Muzaffarnagar town. Population (1902), 11,563. It is situated on low ground and the neighbourhood is swampy. The more important streets are metalled and drained. Kāndhla was constituted a municipality in 1872. The income and expenditure during the ten years ending 1901 averaged

Rs. 6,700. In 1903-4 the income was Rs. 11,000, chiefly derived from octroi (Rs. 6,600); and the expenditure was Rs. 11,000. There is a considerable local trade in grain, cotton, and cloth, which is manufactured here. The *tahsīlī* school had 130 pupils in 1904.

**Kandhmāls.**—Subdivision in Angul District, Bengal. See KHOND-MĀLS.

**Kāndi Subdivision.**—South-western subdivision of Murshidābād District, Bengal, lying between  $23^{\circ} 43'$  and  $24^{\circ} 12'$  N. and  $87^{\circ} 50'$  and  $88^{\circ} 14'$  E., with an area of 512 square miles. The subdivision, which is watered by the Bhāgīrathi and Dwārka rivers, consists for the most part of undulating country, but near those rivers the land is alluvial and low-lying. The population in 1901 was 334,053, compared with 297,122 in 1891, the density being 652 persons per square mile. It contains one town, KĀNDI (population, 12,037), its head-quarters; and 883 villages.

**Kāndi Town.**—Head-quarters of the subdivision of the same name in Murshidābād District, Bengal, situated in  $23^{\circ} 58'$  N. and  $88^{\circ} 3'$  E., near the Mor river. Population (1901), 12,037. Kāndi owes much of its importance to the fact that it is the residence of the Rājās or Paikpāra, a wealthy and devout Hindu family. The founder of this family was Gangā Gobind Singh, a banian of Warren Hastings, who was born at Kāndi, and retired thither in his old age with an immense fortune, which he devoted to the erection of shrines and images of Krishna. His name has acquired a traditional celebrity for the most magnificent *srāddha* or funeral obsequies ever performed in Bengal, costing 20 lakhs, in honour of his mother. Kāndi was constituted a municipality in 1869. The income and expenditure during the decade ending 1901-2 averaged Rs. 7,000. In 1903-4 the income was Rs. 9,000, mainly from a tax on persons; and the expenditure was Rs. 8,000. The town contains the usual public offices, a sub-jail with accommodation for 24 prisoners, and a dispensary with 24 beds. The latter is maintained from the proceeds of an endowment fund, now amounting to 1.59 lakhs, left by the late Kumār Giris Chandra Sinha of Paikpāra, and is the best-equipped hospital in the District.

**Kāndī.**—Village in the Kalabgūr *tāluka* of Medak District, Hyderabad State, situated in  $17^{\circ} 35'$  N. and  $78^{\circ} 6'$  E., 5 miles south-east of Sangareddipet. Population (1901), 1,573. Upon the open plain close by stand two stones with Telugu or old Kanarese inscriptions, surmounted by the sun and moon.

**Kandiāro Tāluka.**—*Tāluka* of Hyderabad District, Sind, Bombay, lying between  $26^{\circ} 55'$  and  $27^{\circ} 14'$  N. and  $68^{\circ} 2'$  and  $68^{\circ} 30'$  E., with an area of 320 square miles. The population in 1901 was 62,937, compared with 55,733 in 1891. The density, 197 persons per square mile, is, after Hyderabad *tāluka*, the highest in the

District. The number of villages is 69, of which Kandiāro is the head-quarters. Land revenue and cesses in 1903-4 amounted to more than  $1\frac{1}{2}$  lakhs. The surface of the *tāluka* has the appearance of two large land waves with three depressions; and throughout its length on the river bank it is protected by a belt of forests. About two-thirds of the total is irrigated by canals, aided by wells. The chief crops are wheat, *jowār*, and gram.

**Kandiāro Village.**—Head-quarters of the *tāluka* of the same name in Hyderābād District, Sind, Bombay, situated in  $27^{\circ} 3' N.$  and  $68^{\circ} 17' E.$ , on the Nasrat canal. Population (1901), 3,916. The principal occupation of the inhabitants is agriculture, but the Hindus are engaged in trade, which is mainly in grain and cloth. The village is said to have been built during the reign of Jahāngīr. Before it was founded another was in existence close by, called Patoipur, which was abandoned owing to an unusual rise of the inundation waters. The site of the present village was then chosen as being more elevated; and having at the time a large number of *kandi* trees growing upon it, the place took, it is supposed, from this circumstance the name of Kandiāro. Kandiāro has a technical school supported by the local board with an average daily attendance of 80 students, 6 other schools, of which 2 are for girls, and a dispensary.

**Kandukūr Subdivision.**—Subdivision of Nellore District, Madras, consisting of the *tāluka*s of KANDUKŪR and KANAGIRI and the *zamin-dāri tahsils* of DARSİ and PODILI.

**Kandukūr Tāluk.**—Coast *tāluk* of Nellore District, Madras, lying between  $14^{\circ} 58'$  and  $15^{\circ} 30' N.$  and  $79^{\circ} 38'$  and  $80^{\circ} 5' E.$ , with an area of 787 square miles. The population in 1901 was 151,417, compared with 148,475 in 1891. It contains one town, KANDUKŪR (population, 9,569), the head-quarters; and 161 villages. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 3,58,000. The *tāluk* may before long be well supplied with irrigation, as it will be commanded by the great Tungabhadra-Penner and Kistna projects. The Manneru with its affluent, the Upputeru, the Paleru, the Mūsi, and the Yelikeru are the chief rivers. The Manneru feeds the Karedu tank, but the others are at present undeveloped as sources of irrigation.

**Kandukūr Town.**—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in  $15^{\circ} 13' N.$  and  $79^{\circ} 54' E.$ , about 9 miles west of Singarāyakonda railway station and 13 miles from the sea. Population (1901), 9,569, mainly agriculturists. Two ancient temples here are dedicated to Vishnu and Siva.

**Kaner.**—Petty State in KĀTHIĀWĀR, Bombay.

**Kanethi.**—Petty State feudatory to the Bashahr State, Punjab, lying in two portions between  $31^{\circ} 9'$  and  $31^{\circ} 18' N.$  and  $77^{\circ} 32'$  and

77° 40' E. The area is 19 square miles, the population (1901) 2,575, and the revenue Rs. 4,000, about half of which is derived from forests. The present Thākūr is Amog Chand, a Hindu Rājput, related to the Rānā of Kumhārsain. His territory is bounded by Kumhārsain, Bashahr, and the Kot Khai *pargana* of Simla District. The State has suffered much from misgovernment, and it has been necessary to take it under direct management. The Thākūr, who is a minor, is being educated at the Aitchison College; and during his minority the administration is conducted by an official deputed by Government, who exercises full powers, except that sentences of death require the confirmation of the Superintendent, Hill States, Simla. The State pays a tribute of Rs. 900 to Bashahr.

**Kāngra District.**—North-easternmost District of the Jullundur Division, Punjab, lying between 31° 21' and 32° 59' N. and 75° 37' and 78° 42' E., with an estimated area of 9,978 square miles. It is bounded on the north-west by Chamba State; on the north by Kashmīr territory; on the east by Tibet; on the south-east by Bashahr State; on the south by the Kotgarh villages of Simla District, and by the States of Kumhārsain, Sangri, Suket, Mandī, and Bilāspur; on the south-west by the District of Hoshiārpur; and on the west by Gurdāspur. It stretches eastwards from the plains of the Bārī and Jullundur Doābs across the Hīmālayan ranges to the borders of Tibet, and comprises two distinct tracts which lie on either side of the Outer Hīmālayas and present very diverse natural features. Of these two tracts the western block, which constitutes Kāngra proper, is described in this article. This portion, which lies south of the Dhaola Dhār range of the Outer Hīmālayas, consists of an irregular triangle, whose base lies upon the Hoshiārpur border, while the Native States of Chamba and Mandī constrict its upper portion to a narrow neck, known as Bangāhal, at one point less than 10 miles in width. Beyond this, the eastern block expands once more like an hour-glass, and embraces the Kulū subdivision, which comprises the *talukās* of KULŪ and SARĀJ and the mid-Hīmālayan cantons of LĀHUL and SPITI, each of which merits separate description.

**Physical  
aspects.**

Of the total estimated area of 9,978 square miles, 2,939 are in Kāngra proper. This is the more important part of the District as regards population and cultivation, and comprises two wide and fertile valleys. The Kāngra valley lies between the Dhaola Dhār and the long irregular mass of lower hills which run, almost parallel to the Dhaola Dhār, from north-west to south-south-east. The second valley runs between these hills and the Sola Singhi range, and thus lies parallel to the Kāngra valley. On the north-west the District includes the outlying spurs which form the northern continuation of the Sola Singhi, running down to the banks of the Beās and Chakki, and it also

embraces the western slopes of that range to the south. The Kāngra valley is famous for its beauty, the charm lying not so much in the rich cultivation and perpetual verdure of the valley itself as in the constant yet ever-changing view of the Dhaola Dhār, whose snowy peaks rise sheer above the valley, sometimes to 13,000 feet, and present a different phase of beauty at each turn in the road. The *taluka* of Bangāhal forms the connecting link between Kāngra proper and Kulū, and is divided by the Dhaola Dhār into two parts: to the north Barā or Greater Bangāhal, and to the south Chhotā or Lesser Bangāhal.

Although the general trend of the three main ranges which enclose the valleys of Kāngra proper is from north-west to south-east-by-south, its one great river, the Beās, flows through this part of the District from east to west. Entering the centre of its eastern border at the southern head of the Kāngra valley, it runs past Sujānpur Tira in a narrow gorge through the central mass of hills, flowing westwards with a southerly trend as far as Nādaun. Thence it turns sharply to the north-west, flowing through the valley past Dera Gopipur; and gradually winding westward, it passes between the northern slopes of the Sola Singhi range and the hills forming its continuation to the north. The remainder of the District is singularly devoid of great streams. The Kāngra valley is drained by several torrents into the Beās, the principal of these flowing in deep gorges through the central hills.

All three *facies* of the stratified rocks of the Himālayas are to be found. To the north, in Spiti, the Tibetan zone is represented by a series of beds extending in age from Cambrian to Cretaceous; this is separated from the central zone by the granite range between Spiti and Kulū. The rocks of the central zone consist of slates, conglomerate, and limestone, representing the infra-Blaini and overlying systems of the Simla area. Still farther to the south the third or sub-Himālayan zone consists of shales and sandstones (Sirmūr series) of Lower Tertiary age, and sandstones and conglomerates belonging to the Upper Tertiary Siwālik series. The slate or quartz-mica-schist of the central zone is fissile, and of considerable value for roofing purposes; it is quarried at and round Kanhiāra. Gypsum occurs in large quantity in Lower Spiti<sup>1</sup>.

The main valley is the chief Siwālik tract in the Province, but its flora is unfortunately little known. An important feature is the existence of considerable forests of the *chir* (*Pinus longifolia*), at comparatively low elevations. Kulū (or the upper valley of the Beās) has a rich temperate flora at the higher elevations; in the lower valleys and

<sup>1</sup> Medlicott, 'The Sub-Himālayan Ranges between the Ganges and Rāvi,' *Memoirs, Geological Survey of India*, vol. iii, part ii; Stoliczka, 'Sections across the North-West Himālayas,' *Memoirs, Geological Survey of India*, vol. v, part i; Hayden, 'Geology of Spiti,' *Memoirs, Geological Survey of India*, vol. xxxvi, part i.



in Outer Sarāj (on the right bank of the Sutlej) the vegetation is largely sub-tropical, with a considerable western element, including *Clematis orientalis*, a wild olive, &c. The flora of British LĀHUL, the Chandra-Bhāga or Chenāb valley, and SPITI, are entirely Tibetan.

The forests of Kāngra District used to abound in game of all descriptions; and of the larger animals, leopards, bears, hyenas, wolves, and various kinds of deer are still fairly common. Tigers visit the District occasionally, but are not indigenous to these hills. The ibex is found in Lāhul, Spiti, Kulū, and Barā Bangāhal; and the musk deer in Kulū and on the slopes of the Dhaola Dhār. The wild hog is common in many forests in the lower ranges. Of smaller quadrupeds, the badger, porcupine, pangolin, and otter are commonly found. Different species of wild cat, the flying squirrel, hare, and marmot abound in the hills. The bird-life of both hill and plain is richly represented; and, though game is not very abundant, many species are found. These include several varieties of pheasant, among them the *monāl* and argus, the white-crested pheasant, and the red jungle-fowl which is common in the lower valleys. Of partridges many species are found, from the common grey partridge of the plains to the snow partridge of the Upper Himālayas. Quail and snipe sometimes visit the District in considerable numbers. Ducks, geese, and other water-birds are seen upon the Beās at the beginning and end of summer. Fishing is not carried on to any great extent. Thirty-six fisheries are leased to contractors, mostly on the Beās, only a few being in the lower parts of the hill torrents.

The mean temperature at Kāngra town is returned as 53° in winter, 70° in spring, 80° in summer, and 68° in autumn. The temperature of the southern portion of Kāngra proper is much higher than this, while that of the inhabited parts of the Dhaola Dhār is about 8° lower. Endemic diseases include fever and goitre. The widespread cultivation of rice, by which the whole Kāngra valley is converted into a swamp, has a very prejudicial effect upon health.

The rainfall varies remarkably in different parts. The average annual fall exceeds 70 inches; along the side of the Dhaola Dhār it amounts to over 100; while 10 miles off it falls to about 70, and in the southern parts to about 50. Barā Bangāhal, which is on the north side of the Dhaola Dhār, has a climate of its own. The clouds exhaust themselves on the south side of the great range; and two or three weeks of mist and drizzle represent the monsoon. The rainfall in Kulū is similarly much less than that of Kāngra proper, averaging from 30 to 40 inches; while Lāhul and Spiti are almost rainless.

A disastrous earthquake occurred on April 4, 1905. About 20,000 human beings perished, the loss of life being heaviest in the Kāngra and Pālampur *tahsils*. The station of Dharmśāla and the town of

Kāngra were destroyed. The fort and temples at Kāngra received irreparable damage, and many other buildings of archaeological interest were more or less injured.

The hills of Kāngra proper have formed for many centuries the dominions of numerous petty princes, all of whom traced their descent from the ancient Katoch (Rājput) kings of Jullundur.

According to the mythical chronology of the Mahā-History.  
bhārata, this dynasty first established itself in the country between the Sutlej and the Beās 1,500 years before the Christian era. In the seventh century A.D., Hsien Tsiang, the Chinese Buddhist pilgrim, found the Jullundur monarchy still undivided. At some later period, perhaps that of the Muhammadan invasion, the Katoch princes were driven into the hills, where Kāngra already existed as one of their chief fortresses: and their restricted dominions appear afterwards to have fallen asunder into several minor principalities. Of these, Nūrpur, Siba, Goler, Bangāhal, and Kāngra are included in Kāngra proper. In spite of constant invasions, the little Hindu kingdoms, secure within their Himālayan glens, long held out against the aggressive Muhammadan power. In 1009 the riches of the Nagarkot temple attracted the attention of Mahmūd of Ghazni, who defeated the Hindu princes at Peshāwar, seized the fort of Kāngra, and plundered the shrine of an immense booty in gold, silver, and jewels. But thirty five years later the mountaineers rose against the Muhammadan garrison, besieged and retook the fort, with the assistance of the Rājā of Delhi, and set up a facsimile of the image which Mahmūd had carried away. From this time Kāngra does not reappear in general history till 1360, when the emperor Fīroz Tughlak again led a force against it. The Rājā gave in his submission, and was permitted to retain his dominions: but the Muhammadans once more plundered the temple, and dispatched the famous image to Mecca, where it was cast upon the high road to be trodden under the feet of the faithful.

Two hundred years later, in 1556, Akbar commanded in person an expedition into the hills, and succeeded in permanently occupying the fort of Kāngra. The fruitful valley became an imperial demesne, and only the barren hills remained in the possession of the native chiefs. In the graphic language of Akbar's famous minister, Todar Mal, 'he cut off the meat and left the bones.' Yet the remoteness of the imperial capital and the natural strength of the mountain fastnesses encouraged the Rājput princes to rebel: and it was not until after the imperial forces had been twice repulsed that the fort of Kāngra was starved into surrender to an army commanded by prince Khurram in person (1620). On the last occasion twenty-two chieftains promised obedience and tribute, and agreed to send hostages to Agra. At one time Jahāngīr intended to build a summer residence in the valley, and

collected a band of adventurers and threw himself into the fort of Shāhpur. Shortly afterwards, the Katoch chief rebelled in the eastern extremity of the District, and was soon followed by the Rājās of Jaswān and Datārpur, and the Sikh priest, Bedi Bikramā Singh. The revolt, however, was speedily suppressed; and after the victory of Gujrāt, the insurgent chiefs received sentence of banishment to Almorā, while Kāngra subsided quietly into a British District. After the outbreak of the Mutiny in 1857, some disturbances took place in the Kulū subdivision; but the vigorous measures of precaution adopted by the local authorities, and the summary execution of the six ringleaders and imprisonment of others on the occasion of the first overt act of rebellion, effectually subdued any tendency to lawlessness. The disarming of the native troops in the forts of Kāngra and Nūrpur was effected quietly and without opposition. Nothing has since occurred to disturb the peace of the District.

Few Districts are richer in antiquities than Kāngra. The inscription at PATHVĀR is assigned to the third century B.C., and that at KANHĪARA to the second century A.D. It is impossible to fix the date of the famous fort at KĀNGRA TOWN. A temple in it was plundered by Mahmūd of Ghazni in 1009, and an imperfectly legible rock-inscription, formerly outside one of the gates of the fort and now in the Lahore Museum, is assigned to a period at least 400 years earlier. The small temple of Indreswara at Kāngra dates from about the ninth century. The beautiful shrine of Baijnāth at Kiragrāma was formerly attributed to the same period, but recent investigations point to a date three or four centuries later. The present temple of Bajreswari Devi at Bhawan, a suburb of Kāngra, is a modern structure, but it conceals the remains of an earlier building, supposed to date from 1440. It has acquired a repute, to which it is not entitled, as the successor of the temple that was sacked by Mahmūd. Remains found at Kāngra prove that it was once a considerable Jain centre. The fort at NŪRPUR, built in the sixteenth and seventeenth centuries, contains a curious wooden temple; and in 1886 a temple of much earlier date, with sculptures unlike anything hitherto found in the Punjab, was unearthed. At Masrur, in the Dehra *talhsīl*, are some rock-temples of uncertain date. In the Kulū valley, the principal objects of antiquarian interest are the temples of Bajaura. One of them, probably the older of the two, has been partially freed from the débris and boulders in which it was buried. The other, which shows traces of Buddhist workmanship, and dates from the eleventh century, is decorated with carvings of great beauty. The fort and temples of Kāngra town received irreparable damage in the earthquake of 1905.

The population of the District at the last four enumerations was:

(1868) 743,882, (1881) 730,845, (1891) 763,030, and (1901) 768,124, dwelling in 3 towns and 715 villages. It is divided into the seven *tahsils* of KĀNGRA, NŪRPUR, HAMĪR-PUR, DERA GOPPUR, PĀLAMPUR, KULŪ, and SARAJ; of which the first five are in Kāngra proper, the two last forming the Kulū subdivision. The head-quarters of these are at the places from which each is named, except in the case of Kulū and Sarāj, whose head-quarters are at Sultānpur and Banjār respectively. The towns are the municipalities of DHARMSĀLA, the head-quarters of the District, KANOUR, and NŪRPUR.

The following table shows the chief statistics of population in 1901:—

<i>Tahsil</i>	Area in square miles	Number of Towns	Villages	Population	Population per square mile	Percentage of variation in population between 1891 and 1901	Number of persons able to read and write
Kāngra . . .	429	2	131	126,335	291.5	+ 1.0	7,212
Pālampur . . .	413	1	113	132,955	300.1	+ 2.6	7,177
Kulū and Sarāj . .	1,312	68	68	119,585	89.4	+ 1.8	3,185
Hamīrpur . . .	601	61	61	161,124	268.6	- 0.8	6,677
Dera Gopipur . . .	516	145	145	125,536	213.3		6,397
Nūrpur . . .	525	191	191	102,289	191.8	+ 2.6	1,311
District total	9,978	3	715*	768,124	76.9	+ 0.6	31,617

NOTE.—The figures for the areas of *tahsils* are taken from revenue returns. The total District area is that given in the *Census Report*.  
\* These figures are taken from the *Census Report* of 1901, but the correct number of villages is now 714, the number for the Kulū and Sarāj *tahsils* being 67.

In Kāngra proper Hindus number 608,252, or 94 per cent. of the total; Muhammadans, 38,685, or 6 per cent.; and Sikhs, 1,190. Owing to the vast tracts of uncultivable hill-side, the density of the population is only 77 persons per square mile, varying from 300 in the Pālampur *tahsil* to 65.4 in Kulū; but if the cultivated area alone be considered, the density is 83.4, almost the highest in the Province. The people speak a great variety of dialects of the group of languages classed together as Pahārī, or the language of the hills.

The distinguishing feature in the population is the enormous preponderance of the Hindu over the Muhammadan element, the latter being represented only by isolated colonies of immigrants, while the mass of the people have preserved their ancient faith in a manner wholly unknown in the plains. This circumstance lends a peculiar interest to the study of the Hindu tribes—their castes, divisions, and customs.

The Brāhmans (109,000) number nearly one-seventh of the total population. Almost without exception, they profess themselves to belong to the great Sāraswat family, but recognize an infinity of internal

subdivisions. The first distinction to be drawn is that between Brāhmans who follow, and Brāhmans who abstain from, agriculture. Those who have restricted themselves to the legitimate pursuits of the caste are considered to be pure Brāhmans; while the others are no longer held in the same reverence by the people at large.

The Rājputs number even more than the Brāhmans, 154,000 people returning this honourable name. The Katoch Rājās boast the bluest blood in India, and their prejudices and caste restrictions are those of a thousand years ago. The Katoch clan is a small one, numbering only 4,000. The Rāthis (51,000) constitute the higher of the two great agricultural classes of the valley, and are found chiefly in the Nūrpur and Hamīrpur *tahsīls*. The other is the Ghirths (120,000), who are Sūdras by status. In all level and irrigated tracts, wherever the soil is fertile and produce exuberant, the Ghirths abound; while in the poorer uplands, where the crops are scanty and the soil demands severe labour to compensate the husbandman, the Rāthis predominate. It is as rare to find a Rāthi in the valleys as to meet a Ghirth in the more secluded hills. Each class holds possession of its peculiar domain, and the different habits and associations created by the different localities have impressed upon each caste a peculiar physiognomy and character. The Rāthis generally are a robust and handsome race; their features are regular and well-defined, their colour usually fair, and their limbs athletic, as if exercised and invigorated by the stubborn soil upon which their lot is thrown. On the other hand, the Ghirth is dark and coarse-featured, his body is stunted and sickly, and goitre is fearfully prevalent among his race. The Rāthis are attentive and careful agriculturists; their women take little or no part in the labours of the field. The Ghirths predominate in the valleys of Pālam, Kāngra, and Rihlu. They are found again in the Hal Dūn or Harīpur valley, and are scattered elsewhere in every part of the District, generally possessing the richest lands and the most open spots in the hills. They are a most hard-working race.

Among the religious orders in the hills, the most remarkable are the Gosains (1,000), who are found principally in the neighbourhood of Nādaun and Jawāla Mukhi, but are also scattered in small numbers throughout the District. Many of them are capitalists and traders in the hills, and they are an enterprising and sagacious tribe. By the rules of their caste retail trade is interdicted, and their dealings are exclusively wholesale. Thus they possess almost a monopoly of the trade in opium, which they buy up in Kulū and carry down to the plains of the Punjab. They speculate also in *charas*, shawl-wool, and cloth. Their transactions extend as far as Hyderābād in the Deccan, and, indeed, over the whole of India.

Among the hill tribes the most prominent are the Gaddis (9,000).

Some have wandered down into the valleys which skirt the base of the Dhaola Dhār, but the great majority live on the heights above. They are found from an elevation of 3,500 or 4,000 feet up to 7,000 feet, above which altitude there is little or no cultivation. They preserve a tradition of descent from refugees from the Punjab plains, stating that their ancestors fled from the open country to escape the horrors of the Musalmān invasions, and took refuge in these ranges, which were at that period almost uninhabited. The term Gaddi is a generic name, under which are included Brāhmans and Khattrīs, with a few Rājputs, Rāthīs, and Thākurs. The majority, however, are Khattrīs. Besides the Gosains, the commercial castes are the Khattrīs (7,000) and Sūds (6,000). Of the menial castes, the Chamārs (leather-workers) are the most numerous (57,000). About 77 per cent. of the population are returned as agricultural.

The Church Missionary Society has a station at Kāngra town, founded in 1854, with a branch establishment at Dharmasāla; and there is also a station of the Moravian Mission at Kyelang in Lāhul, founded in 1857, and one of the American United Presbyterian Mission in Sarāj. The District in 1901 contained 203 native Christians.

In the Kāngra *taluk* the subsoil rests on beds of large boulders which have been washed down from the main ranges, and the upper stratum, consisting of disintegrated granite mixed with detritus from later formations, is exceedingly **Agriculture.** fertile. In the neighbourhood of the secondary ranges the soil, though of excellent quality, is less rich, being composed of stiff marls mixed with sand, which form a light fertile mould, easily broken up and free from stones. A third variety of soil is found wherever the Tertiary formation appears: it is a cold reddish clay of small fertility, containing a quality of loose water-worn pebbles; there are few trees in this soil, and its products are limited to gram and the poorer kinds of pulse, while in the first two descriptions the hill-sides are well forested and every kind of crop can be grown. The cultivated area is divided into fields generally unenclosed, but in some parts surrounded by hedges or stone walls. In the Kāngra valley, where rice cultivation prevails, the fields descend in successive terraces levelled and embanked, and where the slope of the land is rapid they are often no bigger than a billiard table; in the west of the Dera and Nūrpur *taluks*, where the country is less broken, the fields are larger in size, and the broad sloping fields, red soil, and thick green hedges are charmingly suggestive of a Devonshire landscape. In many parts, and notably in the Kāngra valley, wide areas bear a double harvest.

In Kulū proper the elevation is the chief factor in determining the nature of the crops sown, few villages lying as low as 3,000 feet and some as high as 9,000. In both Kāngra and Kulū proper the sowing

time varies with the elevation, the spring crop being sown from September to December and the autumn crop from April to July. The whole of Lāhul and Spiti is covered with snow from December to the end of April, and sowings begin as soon as the land is clear. For the District as a whole the autumn crop is the more important, occupying 53 per cent. of the area cropped in 1903-4.

The land is held, not as in the plains by more or less organized village communities, but by individual holders whose rights originated in a grant by a Rājā of a right of tenancy in the royal domains. In Kulū only forest and cultivable and cultivated lands have been measured, amounting to 1,342 square miles.

The area for which details are available from the revenue records of 1903-4 is 3,857 square miles, as shown below:—

<i>Tahsīl.</i>	Total.	Cultivated.	Irrigated.	Cultivable waste.	Forests.*
Kāngra . . .	429	102	53	37	264
Palampur . . .	443	125	62	52	239
Kulū . . .	1,054	67	14	12	963
Sarāj . . .	289	58	2	12	206
Hamīrpur . . .	602	234	5	101	205
Dera Gopīpur . . .	515	167	26	121	136
Nūrpur . . .	525	170	22	72	208
Total	3,857	923	184	407	2,221

\* The revenue returns include only a portion of the forest area.

Wheat is the chief crop of the spring harvest, covering 342 square miles; barley covered 97 square miles, and gram only 42. Maize and rice are the mainstay of the autumn harvest, covering 223 and 164 square miles respectively. Pulses covered 100 square miles. Of the millets, *mandal*, Italian millet, and *chīna* are the most important. There were 6,039 acres under cotton. The tea industry is an important one in Kāngra, 15 square miles being under tea. There are 34 gardens owned by Europeans, and the total output is estimated at over a million pounds of tea annually<sup>1</sup>. Potatoes, introduced shortly after annexation, are now largely cultivated in the higher hills; and the fields round the Gaddi peasants' houses, which formerly produced maize, wheat, or barley hardly sufficient to feed the families which owned them, now yield a very lucrative harvest of potatoes. In Kulū proper poppy is an important crop, covering 2,102 acres. The climate of Kulū is eminently suited for the production of all kinds of European fruits and vegetables, and several European planters do a large trade in pears and apples. In Lāhul barley, wheat, peas, and buckwheat are the principal crops, and in Spiti barley.

<sup>1</sup> This was written before the earthquake of 1905, which had disastrous effects on the tea industry.

The chief improvements in agriculture have been the introduction of tea and the potato. The cultivated area increased by about 5 per cent. during the ten years ending 1900, owing to the efforts of individuals who have broken up waste land near their holdings ; but there is no scope for any considerable increase. Loans from Government are not greatly in demand, the total amount advanced under the Agriculturists' Loans Act during the five years ending 1903-4 being only Rs. 208.

The indigenous breed of cattle is small but strong, and attempts to improve it by the importation of bulls from Hissār have not been satisfactory, the latter being quite unsuited to the climate, and unfitted to mate with the small hill cows. A few bulls of the Dhanni breed have recently been imported from Jhelum District, and it is hoped that they will prove more suitable. The Gūjars are the only people who make a trade of selling milk and *għi*, and who keep herds of buffaloes ; of these, some have a fixed abode in the District and pasture their cattle in the adjoining waste, while others move with their herds, spending the summer on the high ranges, and the winter in the woody parts of the low hills. Buffalo herds are not allowed to enter the Kulū subdivision. The cattle of Lāhul are a cross between the Tibetan yak and the Himālayan breed of cattle. Sheep and goats form in Kāngra proper the chief support of the pastoral tribe of the Gaddis, who move with their flocks, wintering in the forests in the low hills, retreating in the spring before the heat up the sides of the snowy range, and crossing and getting behind it to avoid the heavy rains in the summer. Large flocks are also kept in the Kulū and Sarāj *tahsils*. There are few ponies in the District and not many mules ; the ponies of Kāngra and Kulū proper are poor, but those of Lāhul and Spiti are known for their hardiness and sureness of foot. One pony stallion is maintained by the District board.

Of the total area cultivated in 1903-4, 184 square miles, or nearly 20 per cent., were classed as irrigated. Irrigation is effected entirely by means of channels from the hill streams which lead the water along the hill-sides, often by tortuous channels constructed and maintained with considerable difficulty, and distribute it over the fields. One of these cuts, from the Gaj stream, attains almost the dimensions of a canal, and the channels from the Beās are also important. Most of these works were engineered by the people themselves, and supply only the fields of the villages by which they were constructed ; but a few, for the most part constructed by the Rājās, water wider areas, and an organized staff for their maintenance is kept up by the people without any assistance from Government. In Lāhul and Spiti cultivation is impossible without irrigation, and glacier streams are the chief source.



The forests are of great importance, comprising little short of a quarter of the uncultivated area. Under the Forest department are

**Forests.** 87 square miles of 'reserved,' 2,809 of protected, and 296 of unclassified forests, divided into the two Forest divisions of Kāngra and Kulū, each under a Deputy-Conservator. About 4 square miles of unclassified forests are under the Deputy-Commissioner. Several varieties of bamboo cover the lower hills, the bamboo forests occupying an area of 14,000 acres. The produce exported from the Government forests in Kāngra proper is mainly *chīl* (*Pinus longifolia*) and bamboo, while *deodār* is the chief product of Kulū. In 1903-4 the forest revenue was 2.8 lakhs.

Valuable metal ores are known to exist both in Kāngra proper and in Kulū; but, owing chiefly to the want of means of carriage, of fuel, and of labour, they are practically unworked. Iron

**Minerals.** was smelted for some years in the Kāngra hills, and in 1882 there were eight mines yielding 90 maunds of iron a year; but working ceased entirely in 1897. Ores of lead, copper, and antimony have been found, and in Kulū silver and crystal, while gold in small quantities is sometimes washed from the sands of the Beās and Pārbati; coal, or rather lignite, is also produced, but in insignificant quantities. A lease of the old Shigri mines in Lāhul has recently been granted for the purpose of working stibnite and galena. With this exception, the only minerals at present worked are slates and sandstone for building; the Kāngra Valley Slate Company sells 700,000 slates annually, and three other quarries produce together about 83,000, the total value exceeding Rs. 50,000. Several hot mineral springs near Jawāla Mukhi are impregnated with iodide of potassium and common salt. Hot springs occur at several places in Kulū, the most important being at Manikarn in the Pārbati valley, and at Bashist near the source of the Beās.

The District possesses no factories except for the manufacture of tea, and there are but few hand industries. The cotton woven in the villages holds its own against the competition of

**Trade and communications.** European stuffs, but the industry is seriously handicapped by the small quantity of cotton grown locally. Nūrpur used to be a seat of the manufacture of *pashmīna* shawls, but the industry has long been declining; silver ornaments and tinsel printed cloths are made at Kāngra. Baskets are made in the villages of Kāngra proper and Kulū, and blankets in Kulū, Lāhul, and Spiti.

The principal exports to the plains consist of rice, tea, potatoes, spices, opium, blankets, *pashmīna*, wool, *ghī*, honey, and beeswax, in return for which are imported wheat, maize, gram and other pulses, cotton, tobacco, kerosene oil, and piece-goods. The chief centres of the Kāngra trade in the plains are Hoshiārpur, Jullundur, Amritsar,

and Pathānkot. There is a considerable foreign trade with Ladākh and Yārkand through Sultānpur in Kulū, the exports being cotton piece-goods, indigo, skins, opium, metals, manufactured silk, sugar, and tea, and the imports ponies, borax, *charas*, raw silk, and wool. The principal centres of internal trade are KĀNGRA, Pālampur, SUJĀNPUR TĪRA, JAWĀLA MUKHI, and NŪRPUR.

No railway traverses the District, though one from Pathānkot to Pālampur was contemplated. The principal roads are the Kāngra valley cart-road, which connects Pālampur and Pathānkot, with a branch to Dharmśāla, and the road from Dharmśāla, via Kāngra, to Hoshiārpur and Jullundur. The former is partly metalled and a mail tonga runs daily. A road runs from Pālampur to Sultānpur in Kulū over the Dulchi pass (7,000 feet), which is open summer and winter, going on to Simla. Another road runs through Kulū, and, crossing the Rohtang pass (13,000 feet) into Lāhul, forms the main route to Leh and Yārkand. Ladākh is reached from Lāhul over the Bārā Lācha (16,250 feet). The usual route to Spiti is through Lāhul and over the Kan-zam pass. The total length of metalled roads is 56 miles, and of unmetalled roads 1,073 miles. Of these, all the metalled and 353 miles of the unmetalled roads are under the Public Works department, and the rest under the District board.

Famine is unknown, the abundance of the rainfall always assuring a sufficient harvest for the wants of the people, and the District was classed by the Irrigation Commission of 1903 as secure. The area of crops matured in the famine year 1899-1900 amounted to 69 per cent. of the normal.

The District is in charge of a Deputy-Commissioner, aided by three Assistant or Extra-Assistant Commissioners, of whom one is in charge of the Kulū subdivision and one in charge of the District treasury. Kāngra proper is divided into the Administration. five *tahsils* of KĀNGRA, NŪRPUR, HAMĪRPUR, DERA GOPIPUR, and PĀLAMPUR, each under a *tahsildār* and a *naib-tahsildār*; the KULŪ SUBDIVISION, consisting of the Kulū *tahsil* under a *tahsildār* and a *naib-tahsildār*, the Sarāj *tahsil* under a *naib-tahsildār*; and the mountainous tracts of LĀHUL and SPITI, which are administered by local officials termed respectively the *thākūr* and *nono*. The *thākūr* of Lāhul has the powers of a second-class magistrate and can decide small civil suits; the *nono* of Spiti deals with all classes of criminal cases, but can punish only with fine. The criminal administration of Spiti is conducted under the Spiti Regulation I of 1873. Two officers of the Forest department are stationed in the District.

The Deputy-Commissioner as District Magistrate is responsible for the criminal justice of the District, under the supervision of the Sessions Judge of the Hoshiārpur Sessions Division. The subdivisional officer

of Kulū hears appeals from the *tahsildār* of Kulū, the *naib-tahsildār* of Sarāj, the *thākūr* of Lāhul, and the *nono* of Spiti. Civil judicial work in Kāngra proper is under a District Judge, under the Divisional Judge of the Hoshiārpur Civil Division. In Kulū the subdivisional officer generally exercises the powers of a District Judge, and the Deputy-Commissioner of Kāngra, if a senior official, is appointed Divisional Judge of Kulū. The only Munsif sits at Kāngra, while there are seven honorary magistrates, including the Rājās of Lambāgraon, Nādaun, and Kutlehr in Kāngra proper. The District is remarkably free from serious crime. Civil suits are chiefly brought to settle questions of inheritance involving the rights *inter se* of widows, daughters, and distant agnatic relatives.

The revenue history and conditions differ radically from those of the Punjab proper. The hill states, now combined in Kāngra District, were merely a number of independent manors. Each Rājā enjoyed full proprietary rights, and was a landlord in the ordinary sense of the word, leasing his land at will to individual tenants on separate *pattas* or leases. This fact explains the two prominent characteristics of the revenue system, its variety and its continuity. Just as, on the one hand, the intimate local knowledge of the Rājā and his agent enabled them to impose a rent fixed or fluctuating, in cash or kind, according to the resources and the needs of each estate, so, on the other hand, the conquerors, Mughal and Sikh, imposed their tribute on the several Rājās, leaving them to devise the source and the method of collection. The Mughals, it is true, reserved certain areas as imperial demesnes, and here they introduced *chaudhris* who were responsible both for the collection of the revenue and for the continued cultivation of the soil. They made no change, however, either in assessments or in methods of collection. The Rājās depended on their land-agents (called variously *kārdār*, *hākīm*, *amīn*, or *palsara*), and these in turn had under them the *kotwāls*, who were responsible for eight or ten villages apiece. The village accountant, or *kāyāt*, the keeper of the granary (*kotiāla*), with constables, messengers, and forest watchers, made up the revenue staff. Every form of assessment was to be found, from the division of the actual produce on the threshing-floor to permanent cash assessments.

Ranjit Singh was the first to interfere with the Rājās' system. He appointed a *nāsim*, or governor of the hill territory, who managed not only the revenue, but the whole expenditure also. Under him were *kārdārs*, who either farmed the revenue of their *parganas*, or accepted a nominal salary and made what they could. The ancient system, however, has survived the misrule of the Sikhs. Every field in the valley is clearly defined; and the proportion of its produce payable to Government is so firmly established that, even under the present cash

assessments, it forms the basis on which the land revenue is distributed among individual cultivators.

The first act of the British officers was to apply the village system of the plains to the Kāngra valley. The tenants, with their private cultivating rights, became the proprietary body, with joint revenue-paying responsibilities. The waste, formerly regarded as the property of the Rājās, became attached to the village communities as joint common land. The people thus gained the income arising from the common land, which had previously been claimed by the state.

A summary settlement was made in 1846 by John Lawrence, Commissioner of the Jullundur Doāb, and Lieutenant Lake, Assistant Commissioner, based entirely on the Sikh rent-roll with a reduction of 10 per cent. The first regular settlement, made in 1849, reduced the demand on 'dry' land by 12 per cent., maintaining the former assessment on 'wet' land. A revised settlement, made in 1866-71, had for its object the preparation of correct records-of-rights: but the assessment was not revised until 1889-94, when an increase of 19 per cent. was announced. Rates varied from Rs. 1-5-4 to R. 0-14-7 per acre. The total demand in 1903-4, including cesses, was about 10.7 lakhs. The average size of a proprietary holding is 2 acres. There are a number of large *jāgīrs* in the District, the chief of which are Lambāgraon, Nādaun, and Dādo Siba in Kāngra proper, and *wasīri* Rūpi in Kulū.

A system of forced labour known as *begār* was in vogue in the Kāngra hills until recently, and dates back from remote antiquity. All classes who cultivate the soil were bound to give, as a condition of the tenure, a portion of their labour for the exigencies of the state. Under former dynasties the people were regularly drafted and sent to work out their period of servitude wherever the ruler chose. So inveterate had the practice become that even artisans, and other classes unconnected with the soil, were obliged to devote a portion of their time to the public service. Under the British Government the custom was maintained for the conveyance of travellers' luggage and the supply of grass and wood for their camps, but was practically abolished in Kāngra proper in 1884, and in Kulū in 1896.

The collections of land revenue alone and of total revenue are shown below, in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	6,19	6,57	7,35	7,50
Total revenue . .	8,76	9,92	10,57	10,55

The District contains three municipalities, DHARMSĀLA, KĀNGRA, and NŪRPUR. Outside these, local affairs are managed by a District board, and by the local boards of Kāngra, Nūrpur, Dera Gopipur,

Hamīrpur, and Pālampur, the arcas under which correspond with the *tahsils* of the same names. The chief source of their income is the local rate, a cess of Rs. 8-5-4 per cent. on the land revenue in Kāngra, of Rs. 10-6-8 in Kulū, and of Rs. 7-8-10 in the *waziri* of Spiti. The expenditure in 1903-4 was Rs. 1,45,000, public works being the principal item.

The District is divided into 15 police stations, 13 in Kāngra proper and 2 in Kulū; and the police force numbers 412 men, with 901 village watchmen. The Superintendent usually has three inspectors under him. The jail at head-quarters contains accommodation for 150 prisoners. It has, however, been condemned as unsafe, and a new one is in contemplation.

Kāngra stands seventh among the twenty-eight Districts of the Province in respect of the literacy of its population. In 1901 the proportion of literate persons was 4.5 per cent. (8.4 males and 0.3 females). The number of pupils under instruction was 2,591 in 1880-1, 3,881 in 1890-1, 3,341 in 1900-1, and 3,852 in 1903-4. In the last year the District contained 6 secondary and 57 primary (public) schools for boys and 9 for girls, and 3 advanced and 20 elementary (private) schools, with 266 girls in the public and 38 in the private schools. The principal educational institution is the high school at Pālampur, founded in 1868, and maintained by the District board. There are 5 middle schools for boys, of which 2 are Anglo-vernacular; 3 of these are maintained by the District board and 2 are aided. The total expenditure on education in 1903-4 was Rs. 35,000, of which Rs. 7,000 was derived from fees, Rs. 4,000 from Government grants, and Rs. 2,000 from subscriptions and endowments. Municipalities contributed Rs. 4,000, and the balance was paid out of District funds.

Besides the civil hospital at Dharmśāla, the District has 8 out-lying dispensaries. In 1904, 739 in-patients and 101,159 out-patients were treated, and 1,769 operations were performed. The expenditure was Rs. 19,000, of which Rs. 14,000 was met from District and Rs. 3,000 from municipal funds.

The number of successful vaccinations in 1903-4 was 40,825, representing the high proportion of 53 per 1,000 of the population. Vaccination is compulsory in Dharmśāla.

[H. A. Rose, *District Gazetteer of Kāngra Proper* (1905); A. Anderson, *Settlement Report of Kāngra Proper* (1897); A. H. Diack, *Gazetteer of Kulū, Lāhul, and Spiti* (1897), *The Kulū Dialect of Hindī* (1896), and *Settlement Report of Kulū Subdivision* (1898).]

**Kāngra Tahsil.**—*Tahsil* of Kāngra District, Punjab, lying between 31° 54' and 32° 23' N. and 76° 8' and 76° 41' E., with an area of 429 square miles. The *tahsil* lies entirely in the hills, between the Dhaola Dhār, which separates it from Chamba on the north, and the

Kālidhār hills on the south. The Bāngangā and Gaj flow through it in a south-westerly direction to join the Beās. The main range of the Dhaola Dhār and its spurs are in many places covered with forest. The population in 1901 was 126,335, compared with 125,138 in 1891. It contains the towns of DHARMSĀLA (population, 6,971) and KĀNGRA (4,746), the head-quarters; and 134 villages, of which KANHĪĀRA and CHARI are of archaeological interest. The land revenue and cesses in 1903-4 amounted to 2 lakhs.

**Kāngra Town** (*Nagarkot*<sup>1</sup> or *Kot Kāngra*).—The town in Kāngra District, Punjab, formerly the head-quarters of the District and still the head-quarters of the Kāngra *taluk*, situated in 30° 5' N. and 76° 16' E. Population (1901), 4,746. Lying on the northern slope of the low ranges which run through the centre of the District, it faces Dharmśāla and commands a fine view of the Kāngra valley. In its lower suburb (called Bhawan) was the temple of Devī Bajreshri, whose gilded cupola was, until the earthquake of 1905, a conspicuous landmark, and which contained a late Sanskrit inscription of about 1430 dedicated to Jawāla Mukhi and mentioning Sansār Chand I, the Katoch king of Kāngra. On the lofty ridge south of and above the town stood Kot Kāngra or 'the fort,' surrounded on three sides by inaccessible cliffs. In its highest part were the dwellings and temples of the old Katoch kings of Kāngra. The town, with the fort and temples, was destroyed by the earthquake of April 4, 1905, in which 1,339 lives were lost in the town. Seven Europeans were among the killed.

Kāngra has from time immemorial been a stronghold of the Katoch Rājās. Firishta, in his introductory chapter narrating the exploits of a former king of Kanauj, who overran the hills from Kumaun to Kashmir, subduing 500 petty chiefs, distinctly alludes to the Rājā of Nagarkot. The riches of the temple attracted the attention of Mahmūd of Ghazni, who in 1009 took the fort and plundered the temple, carrying off, it is said, 700,000 golden *dinārs*, 700 *mans* of gold and silver plate, 200 *mans* of pure gold in ingots, 2,000 *mans* of unwrought silver, and 20 *mans* of jewels, including pearls, corals, diamonds, and rubies. The temple plundered by Mahmūd was probably situated within the fort and was not the temple of Devī in Bhawan, as has been supposed. Thirty-five years later the place is said to have been recaptured after a siege of four months by the Hindu princes under the Rājā of Delhi. Kāngra submitted to Fīroz Shāh in 1360, who again plundered the temple; and in 1388 prince Mahmūd Tughlak, when a fugitive from Delhi, found an asylum here till called to the throne in 1390. Kāngra was permanently garrisoned under the Mughals, and should have passed to Ahmad Shāh Durrāni in the

<sup>1</sup> Nagarkot appears to have been the name of the town and Kāngra of the fort.

cession of 1752; but the governor, Saif Ali Khān, refused to surrender it, and maintained himself in the fort for twenty years. After his death in 1774, Sansār Chand, Rājā of Kāngra, laid siege to the fort and, being unable to reduce it, called in the Sikh leader Jai Singh, Kanhaya, to whom, and not to the Rājā, it surrendered. Jai Singh, however, withdrew in 1785, and Sansār Chand possessed himself of the fort. Kāngra was besieged from 1806 to 1809 by the Gurkhas, who were only repelled by the aid of Ranjīt Singh. In return for his services the Mahārājā appropriated for himself the fort, which was held by the Sikhs when the Jullundur Doāb was ceded to the British in 1846. The governor refusing to surrender, the fort was invested and capitulated after a two months' siege. The head-quarters of the District were first fixed at Kāngra, but were transferred to Dharmasāla in 1855.

The temple of Devī above mentioned was one of the most ancient and famous shrines in Northern India, and was largely resorted to by pilgrims from the plains at the great festivals held in March, April, and October. The municipality was created in 1867. The income during the ten years ending 1902-3 averaged Rs. 5,500, and the expenditure Rs. 5,300. In 1903-4 the income was Rs. 5,600, chiefly derived from octroi; and the expenditure was Rs. 6,500. Its position on the Kāngra valley cart-road makes it an important centre of internal trade. The chief educational institution is an Anglo-vernacular middle school maintained by the Church Missionary Society, which has a station here. There is a Government dispensary.

**Kangundi Tahsil.**—*Zamīndāri tahsīl* in the south-west corner of North Arcot District, Madras, lying between 12° 35' and 12° 56' N. and 78° 14' and 78° 35' E., with an area of 347 square miles. It comprises the Kangundi *zamīndāri*. The head-quarters are now the village of Kuppam, which is also the residence of the *zamīndār*; but the *tahsīl* gets its name from the village of KANGUNDI, which was formerly the chief town in this part of the country. The population rose from 54,052 in 1891 to 64,446 in 1901, the increase during the decade (19 per cent.) being the highest in any portion of the District. The increase was largely due to the existence of several gold-mines, a continuation of those in the adjoining Kolār Gold Fields, in the part which borders on Mysore State. The number of villages is 268. The *peshkash* (including cesses) payable to Government in 1903-4 amounted to Rs. 29,500.

**Kangundi Village.**—Village in the *zamīndāri tahsīl* of the same name in North Arcot District, Madras, situated in 12° 46' N. and 78° 27' E. Population (1901), 637. It was once the chief place in the neighbourhood and the residence of the *zamīndār* of Kangundi, but has been depopulated by fever and famine. It lies at the base

of a precipitous hill, crowned with the ruins of a fort which must have been a place of great strength. The *samūdār's* old palace is also an imposing pile.

**Kānheri Caves.**—Caves in Thāna District, Bombay, situated in a wild picturesque valley in the heart of the island of Salsette, in  $19^{\circ} 13' N.$  and  $72^{\circ} 59' E.$ , about 6 miles from Thāna. They may be reached from the Bhāndup station of the Great Indian Peninsula Railway, or from the Borivli station of the Bombay, Baroda, and Central India Railway. The name Kanherigiri, perhaps a Prākṛit corruption of the Sanskrit Krishnagiri or 'Kṛishna's hill,' seems to show that the fame and holiness of Kānheri date from before the rise of Buddhism. From the simple style of some of them, and an inscription in the caves at Nāsik, it is presumed that they date from 100 B.C. to A.D. 50. Additions both of fresh caves and of new ornaments in old caves seem to have been made in the fourth, fifth, and sixth centuries A.D. The caves consist of numerous dwellings and some *chaityas* or relic shrines. In all, there are upwards of a hundred excavations. Except the *chaityas* and the peculiarly planned cave known as the Darbār cave, they have stone sleeping benches running round the walls. There are some fifty-four inscriptions, which have been partly deciphered and relate the names of the builders. The cathedral or large *chaitya* cave is the most important of the group. In front of it were once two or three relic mounds, of which the largest was built of stone and brick and was from 12 to 16 feet high. The Darbār cave or 'place of assembly' is the next largest, and is distinguished by two long low seats or benches running down the whole length of the centre.

[For a full description of the Kānheri caves, see *Bombay Gazetteer*, vol. xiv, pp. 121–95.]

**Kanhiāra.**—Village in the District and *taluk* of Kāngra, Punjab, situated in  $32^{\circ} 12' N.$  and  $76^{\circ} 24' E.$ , 4 miles east of Dharnisāla. Population (1901), 3,446. The name is a corruption of Krishna-yashas-ārāma, according to Cunningham, or possibly Krishna-vihāra. An inscription cut on two massive granite blocks in the Brahmi and Kharoshthi scripts found here would appear to prove the existence of a Buddhist monastery (*ārāma*) at this place in the second century A.D. Slate is quarried at and round the village. Kanhiāra suffered seriously from the earthquake of April 4, 1905.

[*Archaeological Survey Reports*, vol. i, p. 177; and *Epigraphia Indica*, vol. vii, p. 116.]

**Kani.**—Northernmost township of the Lower Chindwin District, Upper Burma, lying on both sides of the Chindwin river, between  $22^{\circ} 2' N.$  and  $22^{\circ} 50' N.$  and  $94^{\circ} 16' E.$  and  $95^{\circ} 5' E.$ , with an area of 1,788 square miles. The population was 41,232 in 1891, and 48,717 in 1901, distributed in 256 villages, Kani (population, 1,097), about



40 miles above Monywa, on the right bank of the Chindwin, being the head-quarters. A large portion of the township consists of 'reserved' forests, and the whole is hilly and well watered. Cultivation is confined to the narrow valleys in that portion lying west of the Chindwin, and to the flatter part east of the river. The area cultivated in 1903-4 was 32 square miles, and the land revenue and *thathameda* amounted to Rs. 1,11,000.

**Kanigiri Tāluk.**—*Tāluk* of Nellore District, Madras, lying between  $15^{\circ} 1'$  and  $15^{\circ} 35'$  N. and  $79^{\circ} 5'$  and  $79^{\circ} 41'$  E., with an area of 1,014 square miles. It is bounded on the south by the Udayagiri *tāluk*, and on the east for some distance by the Mālakonda range of hills. The population, which was 131,222 in 1891, had fallen in 1901 to 110,813, a succession of bad seasons having caused large numbers to emigrate. The demand on account of land revenue and cesses in 1903-4 amounted to Rs. 65,000. The *tāluk* contains one town, KANIGIRI (population, 5,528), the head-quarters; and 188 villages. Only 34 of the latter belong to Government, and 22 are *shrotriems*, interspersed among the more numerous *samindāri* villages of the KĀLAHASTI and VENKATAGIRI Estates. The head-quarters, formerly at Mogallūr, a *samindāri* village, were removed to Kanigiri in 1879. Besides the *tāluk* office, there is a District Munsif's court at this place. The general aspect of the country is forbidding. Treeless plains of red sand stretch in all directions. At Kanigiri there is a block of rocky hills. In the north-western corner near Nandanavanam some remarkable sandhills from 29 to 30 feet in height spread over a considerable area. They are probably formed of detritus from the neighbouring hills drifted by the force of the fierce land-wind. Wells are fairly numerous. The Paleru, the Manneru, and their affluents, rising among the ranges of hills to the west, drain the *tāluk*. *Īrāgi* and *canbu* are the staple food-crops. *Aruga* is also grown and is preferred to the others as a food. Rice is imported. Education is backward, and not a few villages are to be found where the village accountant is the only person who can read and write. The *tāluk* is wanting in facilities for irrigation. There are a few tanks, of which nine belong to Government, but none of them commands any considerable area. Various irrigation projects are under consideration, and the Hājipuram project, to impound the freshes of the Dommaleru, is in progress.

**Kanigiri Town.**—Head-quarters of the *tāluk* of the same name in Nellore District, Madras, situated in  $15^{\circ} 25'$  N. and  $79^{\circ} 31'$  E. Population (1901), 5,528. The town has a large market, to which cotton goods and iron are imported from Madras, chillies and tobacco from Kistna, and sundry articles from the Ceded Districts. Spinning instruments, razors, and scissors are manufactured and largely exported; the slippers made here are considered superior to those in other parts

of the District; and the granite of the Kanigiri hill supplies excellent building stone. This hill rises to a considerable height on the north of the town, forming a feature in the landscape for many miles round. On it is a rugged table-land about a square mile in area, where a town is said to have once stood. It is supposed to have been fortified by one of the Gajapatis of Orissa and designated Kanakagiri Vijaya-mārtānda Durgam, combining the name of the hill with that of the deity to whom a temple on it was dedicated. The remains of some of the defences still stand. The place was taken in the sixteenth century by Krishna Deva of Vijayanagar, and played a conspicuous part in local feuds until it was destroyed by Haider Ali.

**Kanjamalai.**—Hill in the District and *tāluk* of Salem, Madras, situated in  $11^{\circ} 37'$  N. and  $78^{\circ} 4'$  E., and 3,238 feet in height. It is a conspicuous object in the Salem landscape, with its hog-backed shape and its serrated ridges, and is widely known for its rich stores of magnetic iron ore. There are five separate beds of this, and the supply is almost inexhaustible. It often contains as much as 40 per cent. of iron. Vast quantities of the ore of these beds have rolled down the sides of the hill, especially to the south, where not only does the extensive talus consist mainly of it, but the fields for one or two miles from the hill are thickly strewn with rolled fragments of all sizes. The Kanjamalai iron was the source of supply of the ill-fated Porto Novo Iron Company, which erected blast furnaces at Porto Novo in the early years of the nineteenth century, but eventually collapsed. Since then no mining has been done here. Two firms hold licences to prospect in the hill, but no definite steps have yet been taken to extract any ore. At the foot of the hill is the famous temple of Siddharkovil.

**Kanjarda.**—Petty State in KĀTINĀWĀR, Bombay.

**Kānkānhalli Tāluk.**—Southern *tāluk* of Bangalore District, Mysore, lying between  $12^{\circ} 15'$  and  $12^{\circ} 49'$  N. and  $77^{\circ} 14'$  and  $77^{\circ} 38'$  E., with an area of 623 square miles. The population rose from 71,868 in 1891 to 83,557 in 1901. The *tāluk* contains one town, KĀNKĀNHALLI (population, 5,588), the head-quarters; and 252 villages. The land revenue demand in 1903-4 was Rs. 1,02,000. The Arkāvati enters the *tāluk* on the north-west, and flows into the Cauvery, which forms the southern boundary. The south is occupied by high hills and forests, with extensive grazing-grounds. *Rāgi*, *avare*, and castor-oil are the chief crops of the open parts. Tamarinds, coco-nuts, and mulberry are grown along the streams. The soils are generally shallow and rocky.

**Kānkānhalli Town.**—Head-quarters of the *tāluk* of the same name in Bangalore District, Mysore, situated on the Arkāvati river, in  $12^{\circ} 33'$  N. and  $77^{\circ} 26'$  E., 36 miles south of Bangalore city. Population (1901), 5,588. The fort was built by Jagadeva Rāya of Channa-

patna about 1577, and taken by the Mysore troops in 1630. Tipū twice destroyed the town to prevent its giving shelter to the British army marching on Seringapatam. The name is properly Kānakāra-nahalli, the village of the Kānakāra or 'landed proprietor.' To this family in 1648 was granted Channarāyapatna (Hassan District). The municipality dates from 1870. The receipts and expenditure during the ten years ending 1901 averaged Rs. 1,800 and Rs. 1,900. In 1903-4 they were Rs. 2,200 and Rs. 2,300.

**Kānker.**—Feudatory State in the Central Provinces, lying between 20° 6' and 20° 34' N. and 80° 41' and 81° 48' E., with an area of 1,429 square miles. It is bounded on the north by Drug and Raipur Districts; on the east by Raipur; on the south by the State of Bastar; and on the west by Chānda. The head-quarters are at Kānker, a village with 3,906 inhabitants, situated on a small stream called the Dudh, 39 miles by road from Dhamtarī station on the Raipur-Dhamtarī branch of the Bengal-Nāgpur Railway. Most of the State consists of hill and forest country; and except in the eastern portion along the valley of the Mahānadī there are no extensive tracts of plain land, while the soil of the valley itself is interspersed with outcrops of rock and scattered boulders. The Mahānadī enters Kānker at a short distance from its source, and flows through the eastern part of the State, receiving the waters of numerous small streams from the hills. Gneiss of a granitoid character is the prevailing rock formation. The principal forest trees are teak, *sāl* (*Shorea robusta*), *sirsā* (*Dalbergia latifolia*), and *bijāsāl* (*Pterocarpus Marsupium*). The ruling chief belongs to a very old Rājput family, and according to tradition his ancestors were raised to the throne by a vote of the people. During the supremacy of the Haihaivansī dynasty of Chhattīsgarh, the chief of Kānker is shown in an old record as in subsidiary alliance with the ruling power, and as having held the Dhamtarī tract within their territories. Under the Marāthās the Kānker State was held on condition of furnishing a military contingent 500 strong whenever required. In 1809 the chief was deprived of Kānker, but was restored to it in 1818 by the British Resident administering the Nāgpur territories, on payment of a tribute of Rs. 500. This was remitted in 1823 on the resumption by the Government of certain manorial dues, and since then no tribute has been paid. The present chief, Lāl Kamal Deo, was installed in 1904. The population in 1901 was 103,536, having increased by 26 per cent. during the previous decade. Gonds form more than half the total, and there are also a number of Halbās. Chhattīsgarhī and Gondī are the languages spoken.

The soil is for the most part light and sandy. Nearly 300 square miles, or 21 per cent. of the total area, were occupied for cultivation in 1904, and 284 square miles were actually under crop. Rice covers

nearly 130 square miles and *kodon* 32. The cultivated area has increased largely in recent years. There are 21 tanks which irrigate about 350 acres. The recent opening of a branch line to Dhamtari has brought the considerable forests of the State within reach of the railway, and a large income is obtained from sales of timber. About 333 square miles are tree forest. The State contains 51 miles of metalled and 75 miles of unmetalled roads: the principal metalled road is from Dhamtari to Kanker.

The total revenue in 1904 was Rs. 1,56,000, the principal heads of receipt being land revenue (Rs. 67,000), forests (Rs. 60,000), and excise (Rs. 20,000). The incidence of land revenue is less than 4 annas per acre of cropped area. The principal items of expenditure were Rs. 45,000 for the maintenance of the ruling family, Rs. 13,000 on general administration, Rs. 8,300 on police, Rs. 4,200 on education, and Rs. 3,400 on land revenue settlement. During twelve years since 1892-3 a total of Rs. 1,14,000 has been expended on public works, under the supervision of the Engineer of the Chhattisgarh States division. Besides the roads already mentioned, an office building, jail, schools, post office, and *sarai* or native travellers' resthouse have been constructed at Kanker. The State supports one vernacular middle and 16 primary schools, with a total of 1,316 pupils. Only 904 persons were returned as able to read and write in 1901, the proportion of male literates being 1.7 per cent. of the population. A dispensary is maintained at Kanker. A Political Agent under the supervision of the Commissioner, Chhattisgarh Division, controls the relations of the State with Government.

**Kānkrej (or Thara).**—A collection of petty estates under the Pālanpur Agency, Bombay, with a total area of 810 square miles. They are bounded on the north by Pālanpur; on the east by a subdivision of Baroda territory; on the south by Rādhanpur State; and on the west by the Pālanpur estates of Diodār. The population in 1901 was 38,829, compared with 38,842 in 1891. The first connexion of the British Government with the States of Kānkrej dates from the formation in 1819-20 of the Mahī Kānthia Agency, in which they were included till 1844, when, on account of their nearness to Pālanpur, they were transferred to the Pālanpur Agency. Kānkrej comprises 26 different estates, the chief of which are Thara, Un, and Kamboi, most of them held by Rājputs who have intermarried with Kol women. The largest and most important estate is Thara, whose chiefs are Vāghela Kolis by caste; and these, by refusing to eat with their brethren, have been allowed to intermarry with Rājput houses, and are now generally admitted as belonging to the Rājput tribe. The principal village in Kānkrej is Thara, 5 miles north of which is Kākar, the ancient capital of the State, with some ruined temples.

**Kānkrolī.**—Chief town of an estate of the same name in the State of Udaipur, Rājputāna, situated in  $25^{\circ} 4' \text{ N.}$  and  $73^{\circ} 53' \text{ E.}$ , about 36 miles north-by-north-east of Udaipur city. The town contains (1901) 3,053 inhabitants, and is the head-quarters of a Gosain who is a descendant of Vallabhāchārya. The estate, which consists of 21 villages situated in different parts of Mewār, is held by him as a *muāfi* or free grant from the Mahārānā. To the north of the town lies the Rāj Samand, a fine sheet of water 3 miles long by  $1\frac{1}{2}$  miles broad, with an area of about 3 square miles. The lake is formed by a dam built at the south-western end by Rānā Rāj Singh between 1662 and 1676. Its construction served to alleviate the sufferings of a starving population, and it is the oldest known famine relief work in Rājputāna. It is said to have cost about 70 lakhs. The dam forms an irregular segment of a circle nearly 3 miles long; the northern portion, which lies between two hills, is about 200 yards long and 70 yards broad, and is entirely faced with white marble from the adjacent quarries. Along the front, a flight of steps descends to the water's edge, while jutting out into the lake are three marble pavilions, all richly sculptured in different patterns. At one end of the embankment is the temple of Dwārka Dhīsh, one of the seven forms of Krishna; and the image now worshipped there is said to be the identical one brought to Rājputāna in 1669 by the descendants of Vallabhāchārya when they left Muttra from fear of Aurangzeb. On a hill to the north-east are the remains of a large Jain temple, said to have been built by Rānā Rāj Singh's minister, Dayāl Sāh. Its spire was partly destroyed by the Marāthās and replaced by a round tower, but it is still a picturesque ruin.

[J. Fergusson, *Picturesque Illustrations of Ancient Architecture* (1841).]

**Kanksiāli.**—Petty State in KĀTHIĀWĀR, Bombay.

**Kannad.**—North-western *tāluk* of Aurangābād District, Hyderābād State, with an area of 769 square miles. The population in 1901, including *jāgīrs*, was 88,901, compared with 82,887 in 1891. The *tāluk* contains 236 villages, of which 68 are *jāgīr*, and Kannad (population, 3,609) is the head-quarters. The land revenue in 1901 was 1.9 lakhs. From the Gaotāla hill, 7 miles north of Kannad, the Gaotāla *ghāt* descends into Khāndesh. The Contingent troops, sent in pursuit of the Bhīls in 1830, were encamped on this hill for six months.

**Kānor.**—Chief town of an estate of the same name in the State of Udaipur, Rājputāna, situated in  $24^{\circ} 26' \text{ N.}$  and  $74^{\circ} 16' \text{ E.}$ , about 38 miles east-by-south-east of Udaipur city. Population (1901), 4,300. The Kānor estate, which consists of 110 villages, is held by one of the first-class nobles of Mewār, who is termed Rāwat and belongs to the Sārangdevot family of the Sesodia Rājputs. The income is about Rs. 32,000, and a tribute of Rs. 2,500 is paid to the Darbār.

**Kanora.**—Petty State in REWĀ KĀNTHA, Bombay.

**Kanpār Ishwaria.**—Petty State in KĀTHIĀWĀR, Bombay.

**Kānpur.**—Principal village in Narsinghpur, one of the Orissa Tributary States, Bengal, situated in  $20^{\circ} 24'$  N. and  $85^{\circ} 11'$  E., on the Mahānadi. Population (1901), 1,727. Kānpur has a bi-weekly market, and a trade in grain, cotton, oilseeds, and sugar-cane.

**Kāntanagar.**—Village in the Thākurgaon subdivision of Dinājpur District, Eastern Bengal and Assam, situated in  $25^{\circ} 48'$  N. and  $88^{\circ} 39'$  E. It is the site of a fine eighteenth-century Hindu temple to Kāntaji (Vishnu), the family god of the Rājā of Dinājpur. The foundation was laid in 1704, but the finest portion was not completed till 1772 : the temple was badly damaged in the earthquake of 1897. The place is much resorted to, and an annual fair is held here at the time of the Rāsh festival in October–November.

[Martin, *Eastern India*, vol. ii, p. 628.]

**Kānth.**—Town in the Amroha *tahsil* of Morādābād District, United Provinces, situated in  $29^{\circ} 3'$  N. and  $78^{\circ} 37'$  E., 17 miles north-west of Morādābād city. Population (1901), 7,092. The town contains a branch of the American Methodist Mission. It is administered under Act XX of 1856, with an income of about Rs. 1,600. There is a small local industry in cotton cloth and sugar. The middle school has 146 pupils.

**Kānthāria.**—Petty State in KĀTHIĀWĀR, Bombay.

**Kānthi.**—Subdivision and village in Midnapore District, Bengal. See CONTAI.

**Kantigale.**—Another name of ZINGKALING HKAMTI, a Shan State in the Upper Chindwin District of Burma.

**Kantigyī.**—Collection of Shan States north of the Myitkyinā District of Upper Burma. See HKAMTI LONG.

**Kantilo.**—Village in Khandparā, one of the Orissa Tributary States, Bengal, situated in  $20^{\circ} 22'$  N. and  $85^{\circ} 12'$  E., on the right bank of the Mahānadi. Population (1901), 4,719. It is situated on the Cuttack–Sonpur road, and is 7 miles from the Rājā's residence. It is a considerable seat of trade, but has somewhat declined in importance since the opening of the Bengal–Nāgpur Railway. The manufacture of brass-ware is largely carried on.

**Kānu.**—Village in Burdwān District, Bengal. See KHĀNA.

**Kapadvānj Tāluka.**—Northern *tāluka* of Kaira District, Bombay, lying between  $22^{\circ} 52'$  and  $23^{\circ} 7'$  N. and  $72^{\circ} 50'$  and  $73^{\circ} 19'$  E., with an area of 279 square miles. The *tāluka* is in shape an oblong, 15 miles long and 30 miles broad, and contains one town, KAPADVĀNJ (population, 15,405), the head-quarters, and 87 villages. The population in 1901 was 75,258, compared with 101,527 in 1891. The density is only 270 persons per square mile, the District average

being 449. The land revenue and cesses in 1903-4 amounted to 1·8 lakhs. Towards the south and west, Kapadvanj is a rich and well-cultivated plain clothed with trees. The Mohar and the Vātrak flow through it, but these streams are of little use for irrigation, being highly charged with soda. The water-supply generally is scanty. *Bājra*, rice, *jowār*, and maize are the staple crops.

**Kapadvanj Town.**—Head-quarters of the *tāluka* of the same name in Kaira District, Bombay, situated in 23° 1' N. and 73° 5' E. Population (1901), 15,405. Near the walls, which protect the place, are the ruins of an ancient town, the scene of some hard-fought battles during the Marāthā ascendancy. It was exchanged for Bijāpur in 1817. Kapadvanj derives its importance from lying on one of the main trade routes between Central India and the coast. The principal objects of interest in the town are a fine reservoir with a well in the centre, and an arch in the Chālukya (1000-1300) style of architecture. A sacred pool, with traditional healing qualities, is inside the well. South of the pool is an underground temple of Mahādeo, which was discovered in A.D. 1044, if popular tradition is to be relied on. The idol appears to have been placed underground to protect it from the iconoclastic zeal of early Musalmān invaders. Of modern buildings that of most note is a Jain temple, the interior of which is richly ornamented with marble pillars, and has a marble pavement inlaid with delicacy and taste. The municipality was established in 1863. The average receipts for the decade ending 1901 were Rs. 15,000; and the income in 1903-4 was Rs. 16,000, chiefly derived from a house and land tax. Precious stones, such as agate and onyx, are found in large quantities in the bed of the Mohar, a rocky stream half a mile north of the town. Manufactures are soap, glass, and leathern butter-jars. The most important article of trade is grain. Besides supplying a considerable local demand, Kapadvanj goods are exported to the Pānch Mahāls, Bālāsīnor territory, and Central India. The town contains a Sub-Judge's court, a dispensary, and 11 schools (9 for boys, including an English school with 52 pupils, and 2 for girls), which are attended by 804 and 258 pupils respectively.

**Kapilavastu.**—The city where Buddha was born, and the ancient capital of the Sākya, from whose royal house he was descended. For many years it was believed that Kapilavastu was on the site now occupied by Bhulā Dīh in the Bastī District of the United Provinces. A re-examination of the narratives of the Chinese pilgrims, and the identification of other sites, had already caused doubts as to the correctness of this view, when, in 1895, an inscription was found on a pillar at Niglivā, in the Nepāl *tarai*, 31 miles north-west of the Uska Bāzār railway station. This inscription recorded a visit by Asoka and repairs to the *stūpa* of Konāgāmana. The latter building is described

in Buddhist literature as close to Kapilavastu, and it was therefore thought that the site had been definitely fixed. Further investigation showed, however, that no remains of the *stūpa* existed in the neighbourhood, and that the pillar itself was not in its original position. In 1896 another pillar was found a mile north of the village of Paderia in Nepāl, and two miles north of the Nepālese *tahsil* station at Bhagwānpur. An inscription showed that it had been raised by Asoka at the Lumbini garden to mark the birthplace of Buddha. The sacred books of the Buddhists state that Buddha was born at the Lumbini garden close to Kapilavastu, and the place is still called Rummin-dei, while a Hindu temple hard by contains a representation of the miraculous birth of Buddha. The pillar itself is split down the middle, thus agreeing with the statement of Hiuen Tsiang, who described it in the seventh century A. D., as having been struck by lightning. The neighbourhood, in which there are many mounds and remains of buildings, has not been fully explored, so that the exact site of Kapilavastu is not known, but it must be within a few miles of Paderia. The accounts of the Chinese pilgrims disagree; and it has been suggested that the sites shown to them were not the same, and that Fa Hian believed Kapilavastu to be represented by Piprahwa in Basti District, 9 miles south-west of Rummin-dei, while Hiuen Tsiang was taken to a different place, Tilaura Kot, 14 miles north-west of the garden. The locality was almost deserted when they visited it.

[See *Report on the Antiquities in the Tarai* by the late P. C. Mukherji, with prefatory note by V. A. Smith (Calcutta, 1901).]

**Kapili.**—River of Assam, which rises on the northern slopes of the Jaintia Hills, Eastern Bengal and Assam, and, after a course of 163 miles, falls into the Kālang at Jāgi, near the western end of Nowgong District. It receives the Doiāng, which carries off the whole of the drainage of the extreme north of Cāchār District, and, in addition to numerous other minor streams, the Jamunā, Barpāni, and Umiām or Kiling. A branch channel connects it with the Kālang at Rahā, 20 miles east of its main junction with that river. In the rainy season the Kapili is navigable by boats of 4 tons burden up to Panimur, the place at which it leaves the hills; but progress beyond this spot is checked by a barrier of rocks, over which the river is precipitated in a fine waterfall. During the dry season boats of this size cannot proceed farther than Kāmpur. In the hills the Kapili flows along a rocky channel; in the plains its course is through low-lying land, and its banks are for the most part covered with dense jungle grass. Most of the hill trade, which consists of cotton, lac, and *eri* silk, comes down the Kapili to Chāparmukh, and is dispatched thence by rail or country boat to Gauhati. The Assam-Bengal Railway crosses the river on a brick bridge 500 yards in length, but this is largely in



excess of the actual breadth of the channel at most seasons of the year. The principal places on its banks are Chāpārmukh, Jamunāmukh, Khārikhāna, and Dharamtul. The floods of this river do considerable damage. Efforts have been made by the villagers to protect their lands, by constructing an embankment for about 7 miles along the southern bank from Deonarikoli to Magurgaon in the Sahari *mauza*.

**Kapilmuni.**—Village in the head-quarters subdivision of Khulnā District, Bengal, situated in  $22^{\circ} 42' N.$  and  $89^{\circ} 19' E.$ , on the Kabadak. Population (1901), 362. Kapilmuni is connected by steamer service with Jhingergācha station on the Eastern Bengal State Railway, and possesses a bi-weekly market. A large annual fair, held in March in honour of the goddess Kapileswarī, is attended by 6,000 or 7,000 persons.

**Kapini.**—River in Mysore District, Mysore. *See* KABBANI.

**Kāpsi.**—Estate in KOLHĀPUR STATE, Bombay.

**Kapūrthala State.**—Native State in the Punjab, under the political control of the Commissioner, Jullundur Division, lying between  $31^{\circ} 9'$  and  $31^{\circ} 44' N.$  and  $75^{\circ} 3'$  and  $75^{\circ} 59' E.$ , with an area of 652<sup>1</sup> square miles. The population in 1901 was 314,341, giving an average density of 499 persons per square mile. The State consists of three detached pieces of territory, the principal of which is an irregular strip of country on the east bank of the Beās, varying in breadth from 7 to 20 miles, and measuring in all 510 square miles. It stretches from the borders of Hoshiārpur District on the north to the Sutlej on the south, while on the east it is bounded by Jullundur District. This portion of the State lies, for the most part, in the Beās lowlands, and is roughly bisected from north to south by the White or Western Bein. The Phagwāra *tahsīl*, which measures 118 square miles, is enclosed by Jullundur District on all sides except the north-east, where it marches with Hoshiārpur. The rest of the territory consists of a small block of villages, known as the Bhunga *ilāka*, which forms an island in Hoshiārpur District. Both these tracts lie in the great plain of the Doāb, which contains some of the best land in the Province, and are traversed by the torrents which issue from the Siwāliks, the most important of which, known as the Black or Eastern Bein, passes through the north of the Phagwāra *tahsīl*. The State lies entirely in the alluvium, and the flora and fauna resemble those of the neighbouring Districts. The climate is generally good, except in the lowlands during the rainy season. The rainfall is heaviest in Bholath and lightest in the Sultānpur *tahsīl*. The average is much the same as in Jullundur.

Physical  
aspects.

<sup>1</sup> These figures do not agree with the area given in Table III of the article on the PUNJAB, and in the table on p. 410 of this article, which is the area as returned in 1901, the year of the latest Census. They are taken from more recent returns. The density is taken from the *Census Report* of 1901.

The ancestors of the chief of Kapūrthala at one time held possessions both in the cis- and trans-Sutlej and also in the Bāri Doāb. In the latter lies the village of Ahlū, whence the family springs, and from which it takes the name of Ahlū-wālia. The scattered possessions in the Bāri Doāb were gained by the sword in 1780, and were the first acquisitions made by Sardār Jassa Singh, the founder of the family. Of the cis-Sutlej possessions, some were conquered by Sardār Jassa Singh, and others were granted to him by Mahārājā Ranjīt Singh prior to September, 1808. By a treaty made in 1809, the Sardār of Kapūrthala pledged himself to furnish supplies to British troops moving through or cantoned in his cis-Sutlej territory; and by declaration in 1809 he was bound to join the British standard with his followers during war. In 1826 the Sardār, Fateh Singh, fled to his cis-Sutlej territory for the protection of the British Government against the aggressions of Mahārājā Ranjīt Singh. This was accorded, but in the first Sikh War the Kapūrthala troops fought against the British at Aliwāl; and, in consequence of these hostilities and of the failure of the chief, Sardār Nihāl Singh, son of Sardār Fateh Singh, to furnish supplies from his estates south of the Sutlej to the British army, these estates were confiscated. When the Jullundur Doāb came under the dominion of the British Government in 1846, the estates north of the Sutlej were maintained in the independent possession of the Ahlūwālia chieftain, conditional on his paying a commutation in cash for the service engagements by which he had previously been bound to Ranjīt Singh. The Bāri Doāb estates have been released to the head of the house in perpetuity, the civil and police jurisdiction remaining in the hands of the British authorities. In 1849 Sardār Nihāl Singh was created a Rājā. He died in September, 1852, and was succeeded by his son, Randhīr Singh. During the Mutiny in 1857 the forces of Randhīr Singh, who never hesitated or wavered in his loyalty, strengthened our hold upon the Jullundur Doāb; and afterwards, in 1858, the chief led a contingent to Oudh which did good service in the field. He was well rewarded; and among other concessions obtained the grant in perpetuity of the estates of Paundī and Ikaunā (in Bahrāich District) and Bhitaulī (in Bāra Banki District) in Oudh, which have an area of 700 square miles, and yield at present a gross revenue of about 13·5 lakhs. Of this, 3·4 lakhs is paid to Government as land revenue and cesses. In these estates the Rājā exercises no ruling powers, though in Oudh he is, to mark his superiority over the ordinary *tālukdārs*, addressed as Rājā-i-Rājagān. This title was made applicable to the Rājā in Oudh only, and not in the Punjab. Rājā Randhīr Singh died in 1870, and was succeeded by his son, Rājā Kharrak Singh. The present Rājā, Jagatjit Singh, son of Kharrak Singh, succeeded in September, 1877, attaining his majority

History.

in 1890. The chiefs of Kapūrthala are Sikhs. Sardār Jassa Singh was always known as Jassa Kalāl; but the family claim descent from Rānā Kapūr, a semi-mythical member of the Rājput house of Jaisalmer, who is said to have left his home and founded Kapūrthala 900 years ago. The Rājā has the right of adoption and is entitled to a salute of 11 guns.

SULTĀNPUR is built on a very ancient site, but the only architectural remains of interest are two bridges and a *sarai*. The *sarai* and one of the bridges are attributed to Jahāngīr, while the other bridge is said to have been built by Aurangzeb. The two princes, Dārā Shikoh and Aurangzeb, are said to have lived for some time in the *sarai* and to have received instruction there from Akhund Abdul Latīf, an inhabitant of the place.

The State contains 603 villages and three towns: KAPŪRTHALA, SULTĀNPUR, and PHAGWĀRA. There are five *tahsils*: namely, KAPŪRTHALA, DHILWĀN, BHOLATH, PHAGWĀRA, and SULTĀNPUR, each with its head-quarters at the place

from which it is named. The population at the last three enumerations was: (1881) 252,617, (1891) 299,690, and (1901) 314,351.

The main statistics of population in 1901 are given in the following table:—

<i>Tahsil.</i>	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of personsable to read and write.
		Towns.	Villages.				
Kapūrthala .	121	1	110	57,314	474	+ 8.2	2,708
Dhilwān .	110	...	103	48,985	444	+ 4.1	1,202
Bholath .	127	...	126	62,270	490	+ 0.7	1,971
Phagwāra .	118	1	88	69,837	592	+ 9.2	2,846
Sultānpur .	176	1	176	75,945	432	+ 1.0	1,904
State total	630	3	603	314,351	499	+ 4.6	10,631

NOTE.—The figures for the areas of *tahsils* are taken from revenue returns. The total State area is that given in the *Census Report*.

About 57 per cent. of the population are Mūhammadans, 30 per cent. Hindus, and only 13 per cent. Sikhs. The percentage of Muhammadans is considerably higher than in the neighbouring Districts and States. In density of population Kapūrthala stands first among the Punjab States and is surpassed by only five of the British Districts. Punjābi is the language of practically all the inhabitants. Among the Muhammadans the most numerous castes are Arains (51,000), Rājputs (24,000), and Jats (14,000). Among Hindus, Jats number 15,000, and Brāhmans 10,000, while the principal menial castes are Chūhrās (sweepers, 21,000) and Chamārs (leather-workers, 12,000). Sikhs are most numerous among the Jats (20,000) and the Kambohs (12,000). Nearly 68 per cent. of the population are dependent on agriculture.

The proportion is higher than in any Punjab District in the plains except Hissār, and is slightly above the average for the States of the Province. Most of the trade is in the hands of Khattris, who number 7,000. Christians number only 39; there is no mission in the State.

The greater portion of the Sultānpur, Dhilwān, and Bholath *tahsils* lies in the lowlands (Bet) of the Beās. Wells are used to irrigate the lands in the Bet, except in years of excessive floods.

In the sandy tracts known as the Dona there are irrigation wells. There are a few strips of land where the soil is too saline for cultivation. The Kapūrthala *tahsil*, as it includes only a small portion of the Bet, is the least fertile, and most of it lies in the Dona tracts. There are many wells in the *tahsil*, but owing to the insufficiency of rainfall and the nature of the soil, the area irrigated by each well is small. The other portions of the State are fertile, and receive ample irrigation either from hill torrents or from wells.

The main statistics of cultivation in 1903-4 are shown in the following table, in square miles:—

<i>Tahsil.</i>	Total area.	Cultivated.	Irrigated	Cultivable waste.
Kapūrthala . . . .	121	92	12	16
Dhilwān . . . . .	110	55	17	17
Bholath . . . . .	127	78	21	10
Phagwāra . . . . .	118	69	18	26
Sultānpur . . . . .	176	110	19	55
Total	652	404	87	124

The tenures of the State present no peculiarities. A few villages are owned by the Rājā, but most are held by agricultural communities. The staple agricultural products, with the area in square miles under each in 1903-4, are as follows: wheat (200), gram (59), maize (47), cotton (9), and sugar-cane (15).

The system of State advances to agriculturists was established in 1876 by Mr. (now Sir C.) Rivaz, the Superintendent of the State, and the total amount advanced during the ten years ending 1903-4 was Rs. 2,13,000.

The cattle bred locally are of an inferior type and the best animals are imported. Efforts are being made to improve the local breed, and a number of Hissār bulls have been introduced. The horses, like those in other parts of the Jullundur Doāb, are small; but six stallions, the property of the State, are located at convenient centres, with the object of improving the breed. Mule-breeding has recently been introduced, and the State maintains 6 donkey stallions. A horse and cattle fair is held every year at Kapūrthala town.

The area irrigated in 1903-4 from wells was 87 square miles; that inundated from the overflow of the Beās and the Western Bein was 68 square miles. In the lowlands, the only *kharīf* crops that can be grown are sugar-cane and rice. In the *rabi* harvest, the wheat and gram are usually excellent. The floods from the hill torrents are often held up by dams and spread over the fields for the irrigation of sugar-cane, rice, &c., by means of small channels. Sometimes the water is raised by means of *jhalārs*, worked in the same way as Persian wheels. In most parts of the State the wells are masonry, but along the rivers or hill torrents unbricked wells are dug for temporary use, especially in seasons of drought. In a year of light rainfall, such as 1899-1900, the area watered by wells may rise as high as 109 square miles. The area irrigated by a single masonry well varies from 5 acres in the sandy tracts of the Kapūrthala *tahsīl* to 7 acres in the Bet. The total number of masonry wells in 1903-4 was 9,394.

There are five 'reserved' forests in the State, covering an area of about 42 square miles. They are kept chiefly as game preserves, and no revenue is derived from them. The grass growing in them is used as fodder for the transport mules, State horses, and elephants.

The State lies wholly in the alluvium, and the only mineral product of importance is *kankar*, which merely supplies local requirements.

Sultānpur is famous for hand-painted cloths, which are made up into quilts, bed-sheets, *jāzams* (floorcloth), curtains, &c., and in the form of *jāzams*, curtains, and tablecloths are exported to Europe. Phagwāra is noted for its metal-work.

**Trade and communications.** The State exports wheat, cotton, tobacco, and sugar in large quantities. Phagwāra has a large and increasing trade in grain; and as the grain market is free from octroi, it has attracted a good deal of the trade which formerly went to Jullundur and Ludhiāna.

The main line of the North-Western Railway passes through the Phagwāra, Kapūrthala, and Dhilwān *tahsīls*, but Phagwāra is the only town on the railway. The grand trunk road runs parallel to the railway and at a short distance from it. It is maintained by the British Government. The total length of the metalled roads maintained by the State is about 25 miles, and of unmetalled roads 35 miles. The most important metalled roads are those connecting the capital with the railway at Kartārpur (7 miles) and at Jullundur (11 miles). The State maintains half of each of these roads. The British Post Office system extends to the State, which has no concern with the postal income or expenditure.

Cash rents prevail, and they are fixed according to the quality of the area leased. The rates vary from a minimum of 6 annas per acre for unirrigated land in the Kapūrthala *tahsīl* to a maximum of Rs. 9 per acre for land supplied by wells in the same *tahsīl*.

Tradition still keeps alive the memory of the famines of 1806 and 1865, when relief measures were undertaken by the State. The famine in 1899-1900 was less severe, but on that occasion also the sufferers were relieved by the distribution of grain and of Rs. 1,323 in cash, though it was not found necessary to start relief works. Famine.

The Commissioner of the Jullundur Division is the Agent to the Lieutenant-Governor for Kapūrthala. The Rājā has full powers. The State pays Rs. 1,31,000 as tribute to the British Government. The chief secretary (*Mushir-i-Isam*) Administration. deals with all papers pertaining to State affairs, which are to be laid before the Rājā for orders, and conducts all correspondence with Government. He is also associated with the two other officials forming the State Council in carrying out the central administration under His Highness's control. For the purpose of general local administration the State is divided into five *tahsils*—KAPŪRTHALĀ, DHILWĀN, BHO-LATH, PHAGWĀRA, and SULTĀNPUR.

The Indian Penal Code and the Procedure Codes are in force in the State, with certain modifications. Legislative measures are prepared by the State Council for the sanction of the Rājā. The main provisions of the Punjab Revenue Law are also generally followed in the State.

Each *tahsil* is in charge of a *tahsildār*, who is invested with powers to dispose of rent, revenue, and civil cases up to the limit of Rs. 300, and also exercises magisterial powers corresponding to those of a second-class magistrate in British Districts. The appeals in rent and revenue cases (judicial and executive side) against the orders of the *tahsildārs* are heard by the Collector, who also decides cases (revenue and judicial) exceeding Rs. 300. There is a Revenue Judicial Assistant who disposes of cases (revenue and judicial) exceeding Rs. 300 in the two *tahsils* of Dhilwān and Bholath. He also hears appeals against the orders of the *tahsildārs* in those *tahsils*. Appeals against the orders of the Collector and the Revenue Judicial Assistant are preferred to the *Mushir-i-Māl*, whose orders are appealed to the State Council, which is the final appellate court in the State. Appeals in civil and criminal suits against the orders of the *tahsildārs* are heard by the magistrate exercising the powers of a District Magistrate. He is assisted as a court of original jurisdiction by an assistant magistrate having the powers of a first-class magistrate. Appeals against the orders of the magistrate and assistant magistrate lie in the appellate court of the Civil and Criminal Judge, appeals from whose decisions are heard by the State Council. In murder cases the Rājā passes sentence of death or imprisonment for life.

The old system under which the revenue was realized in kind was

not done away with until 1865. The share of the State was two-fifths of the entire produce. On some crops, such as sugar-cane, &c., the State used to take its share in money. The revenue was actually collected by the State officials in kind, and stored up in the State granary and sold as required.

The land revenue at the date of British annexation of the Punjab was 5.7 lakhs. In 1865 the first settlement of the State was completed, and the demand was fixed at 7 lakhs. In 1877, during the minority of the present Rājā, the assessment was revised, and the demand raised to 7.7 lakhs. A further revision took place in 1900, when the revenue was raised to 8.7 lakhs. On this occasion the work was carried out entirely by the State officials. During the settlement of 1865, the first revenue survey was undertaken. It was completed in 1868. The rates for unirrigated land vary from 8 annas to Rs. 4 per acre, and for irrigated land from Rs. 3 to Rs. 9 per acre. The average rate for unirrigated land is Rs. 2-7, and for irrigated land Rs. 6-8 per acre.

Two of the State preserves, with an area of 2,200 acres, have been brought under cultivation. Occupancy rights in the greater part of one of these areas have been given to the cultivators on payment of a *nazarāna* at the rates of Rs. 30, Rs. 37-8, or Rs. 45 per acre, according to the quality of the soil; while the remaining portion is given out to tenants-at-will on payment of a *nazarāna* of Rs. 15 per acre. The total *nazarāna* realized in 1903-4 from the tenants was Rs. 76,000.

The following table shows the revenue of the State in recent years, in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue. .	7,38	7,33	7,65	8,39
Total revenue. .	19,08	21,45	24,38	27,17

Apart from land revenue, the main items of income in 1903-4 were : Oudh estates (10.7 lakhs), stamps (2.3 lakhs), cesses (1.7 lakhs), and *jāgīrs* in the Districts of Lahore and Amritsar (0.4 lakh). The total expenditure in 1903-4 was 27.8 lakhs. The main items were : civil service, including tribute (7.7 lakhs), household (6.4), Oudh estates (5.4), public works (4.9), and army (1.9).

Spirit is distilled by licensed contractors in the State distillery. The rights of manufacture and vend are sold by public auction. A fixed charge of Rs. 25 is levied from each contractor for the use of the distillery, and a still-head duty of Rs. 4 per gallon is imposed on all spirit removed for sale. The receipts in 1903-4 were Rs. 21,000. Mālwa opium is obtained by the State from the British Government at the reduced duty of Rs. 280 per chest, up to a maximum of 8 chests annually. The duty so paid is refunded, with the object of securing

the co-operation of the State officials in the suppression of smuggling. The opium is retailed to the contractors at the rates prevalent in the neighbouring British Districts. Licences for the sale of hemp drugs are auctioned. *Charas* is imported from the Punjab and *bhang* from the United Provinces. The profit on opium and drugs in 1903-4 amounted to Rs. 11,000.

The towns of Kapūrthala and Phagwāra have been constituted municipalities. The nomination of the members requires the sanction of the Rājā. The municipality of Kapūrthala was established in 1896 and that of Phagwāra in 1904. There is a local rate committee for the State, which was established in 1901-2, and is presided over by the *Mushir-i-Māl*. The income in 1903-4 was Rs. 15,000, derived mainly from a rate of Rs. 1-9 per cent. on the land revenue. The expenditure is devoted to unmetalled roads and other works of utility for the villages.

The Public Works department was first organized in 1860, and is under the charge of the State Engineer. The principal public works are the State offices, infantry and cavalry barracks, the college, hospitals, Villa Buona Vista, the great temple, and the Victoria *sarai*. The State offices cost 4.9 lakhs. A new palace is under construction.

The State maintains a battalion of Imperial Service Infantry at a cost of 1.2 lakhs; and the local troops consist of 66 cavalry, 248 infantry, 21 gunners with 8 serviceable guns, and a mounted body-guard of 20.

The police force, which is under the control of the Inspector-General, includes 3 inspectors, 1 court inspector, 5 deputy-inspectors, 15 sergeants, and 272 constables. The village *chaukidārs* number 243. There are six police stations, one in charge of an inspector and five in charge of deputy-inspectors. Besides the police stations, there are fifteen outposts. The jail at Kapūrthala has accommodation for 105 prisoners. Jail industries include carpet and *darī* making.

Three per cent. of the population (5 males and 0.3 females) were returned as literate in 1901. The proportion is lower than in the adjoining British Districts and the States of Nābha and Farīdkot, but higher than in Patiala and Jīnd. The number of pupils under instruction was 1,815 in 1880-1, 1,762 in 1890-1, 2,265 in 1900-1, and 2,547 in 1903-4. In the last year there were 27 primary and 5 secondary schools, and an Arts college at Kapūrthala. The number of girls in the schools was 205. All the primary and secondary schools, except those situated in the capital, are controlled by the director of public instruction, but the principal of the college is responsible for the schools at the capital. The course of instruction is the same as in British territory. The total expenditure on education in 1903-4 was Rs. 28,000.

The three hospitals in the State (the Randhīr Hospital, the Victoria Jubilee Female Hospital, and the Military Hospital) contain accommo-



dation for 51 in-patients. There are also 4 dispensaries. In 1903 the number of cases treated was 71,642, of whom 984 were in-patients, and 1,991 operations were performed. The hospitals and dispensaries are in charge of the Chief Medical Officer. In 1904 the total number of persons successfully vaccinated was 5,739, or 18.2 per 1,000 of the population. Vaccination is not compulsory.

[*State Gazetteer* (in press); L. H. Griffin, *The Rājās of the Punjab* (second edition, 1873).]

**Kapūrthala Tahsīl.**—*Tahsīl* of the Kapūrthala State, Punjab, lying between  $31^{\circ} 22'$  and  $31^{\circ} 35'$  N. and  $75^{\circ} 17'$  and  $75^{\circ} 35'$  E., with an area of 121 square miles. The population increased from 52,968 in 1891 to 57,314 in 1901. It contains one town, KAPŪRTHALA (population, 18,519), and 110 villages. The land revenue and cesses in 1903-4 amounted to 1.7 lakhs. The *tahsīl* is the least fertile in the State. Only a small portion of it lies in the Beās lowlands; and the rest consists of a sandy plain beyond the reach of the floods, where the cultivation depends on irrigation from wells.

**Kapūrthala Town.**—Capital of the Kapūrthala State, Punjab, situated in  $31^{\circ} 23'$  N. and  $75^{\circ} 25'$  E., 8 miles east of the Beās, and 11 from Jullundur. Population (1901), 18,519. It is said to have been founded in the eleventh century by Rānā Kapūr of the Rajput ruling family of Jaisalmer, from whom the present Rājā of Kapūrthala claims descent. In 1780 it was wrested by Sardār Jassa Singh from the Muhammadan chieftain who had seized the town and its dependent villages on the break-up of the Mughal empire, and has since been the capital of the State. It contains the Rājā's palace and many other handsome edifices. The town is administered as a municipality, the income of which in 1903-4 was Rs. 13,000, chiefly derived from octroi, and the expenditure Rs. 18,000. It possesses the Randhīr College, a high school, a girls' school, and a hospital.

**Karā.**—Place of historic interest in ALLAHĀBĀD DISTRICT, United Provinces.

